

January 1943

TECHNOLOGY REVIEW

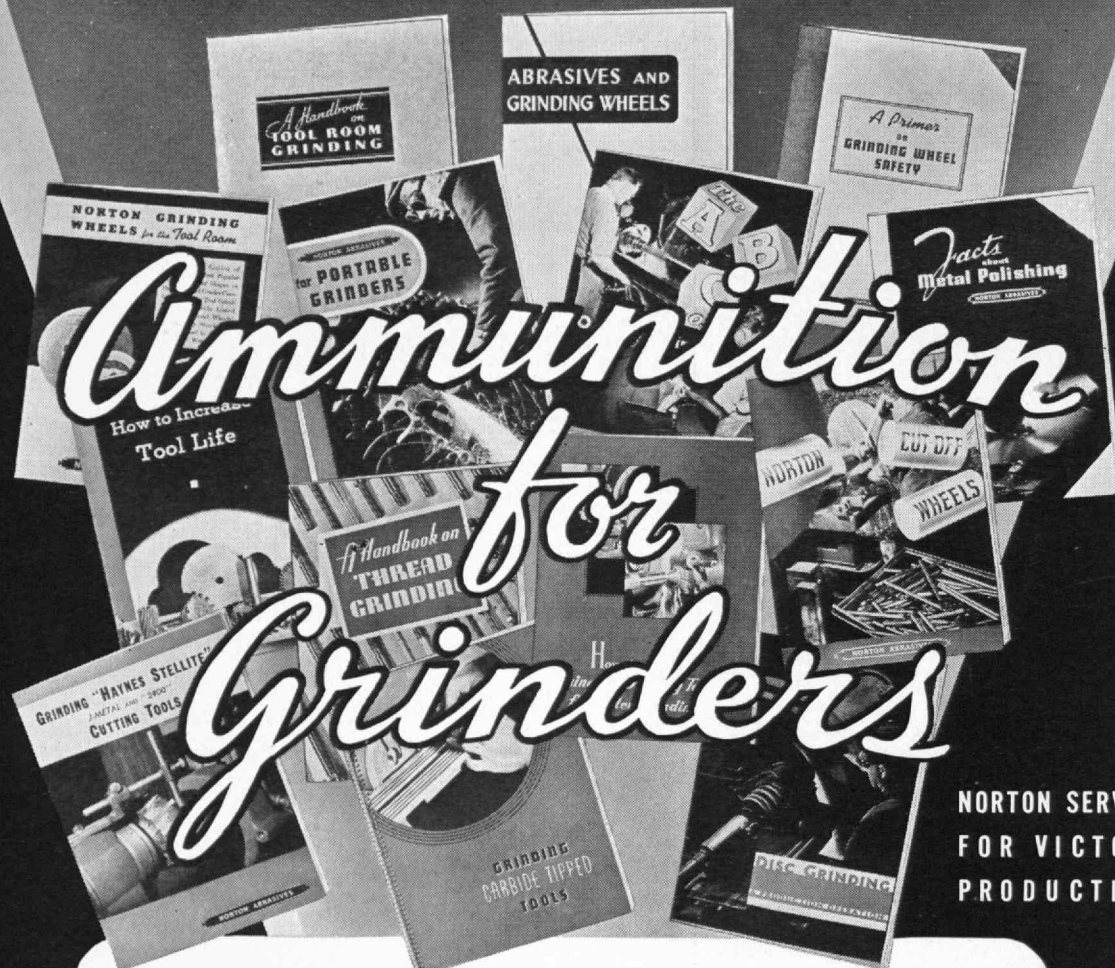
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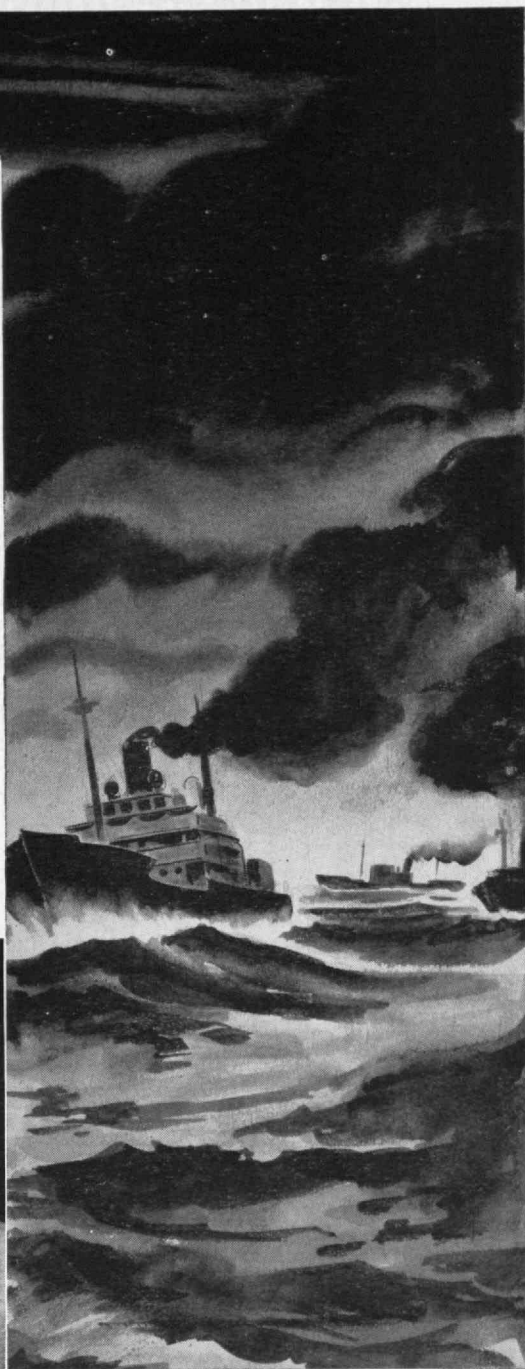
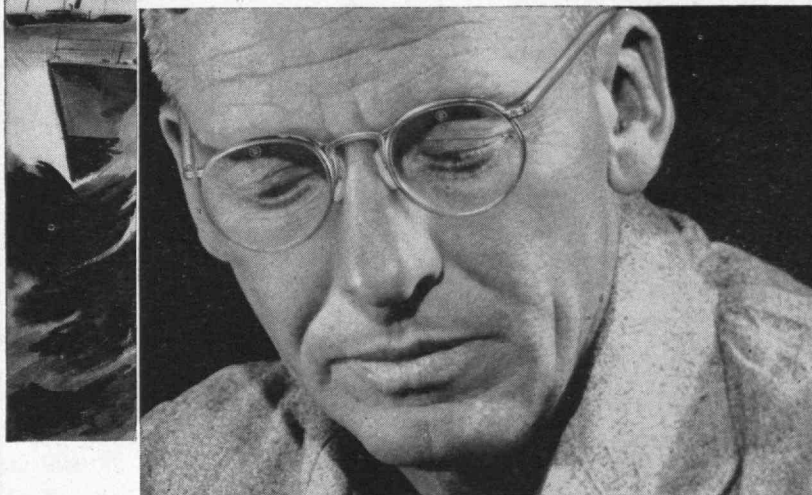
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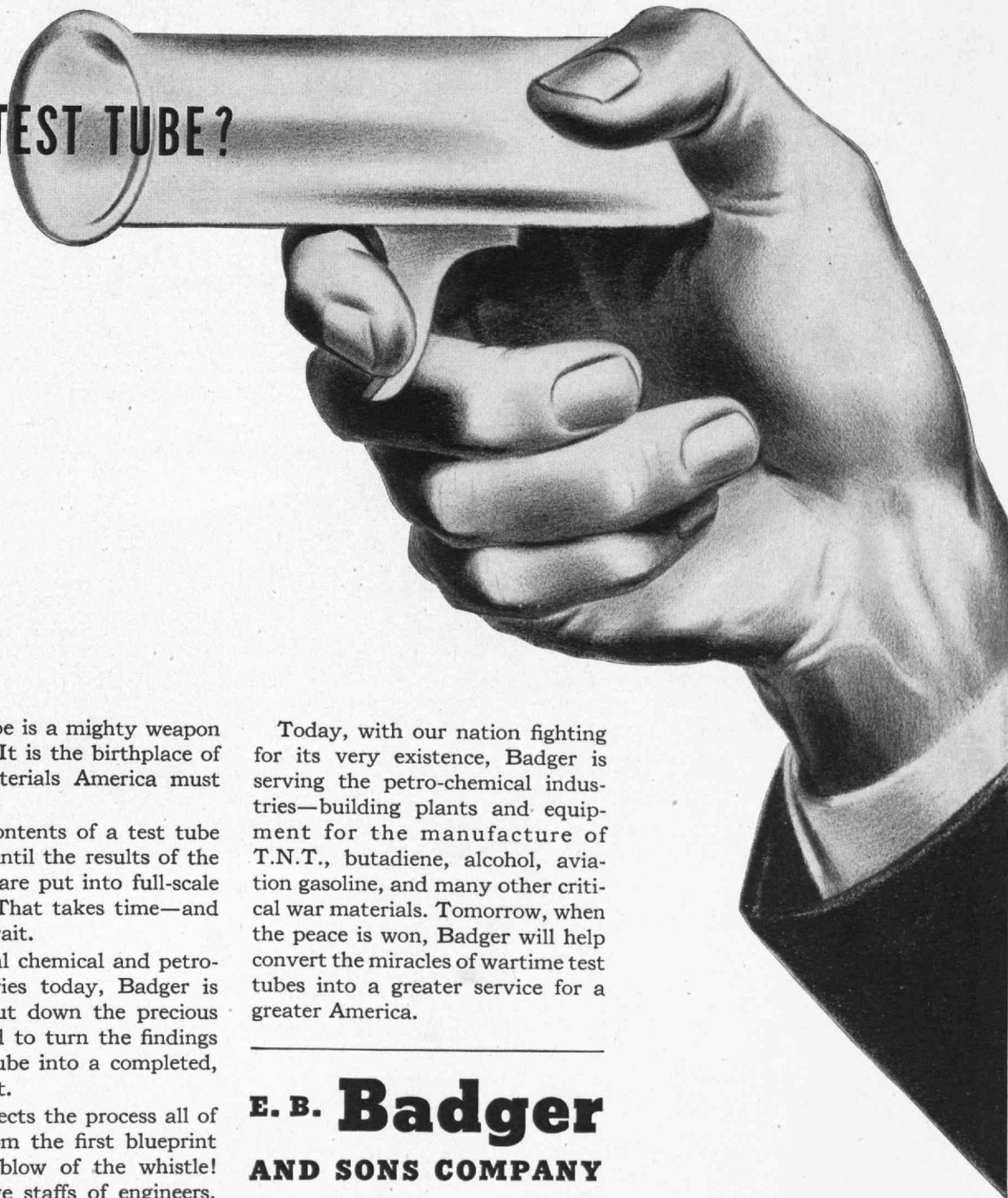
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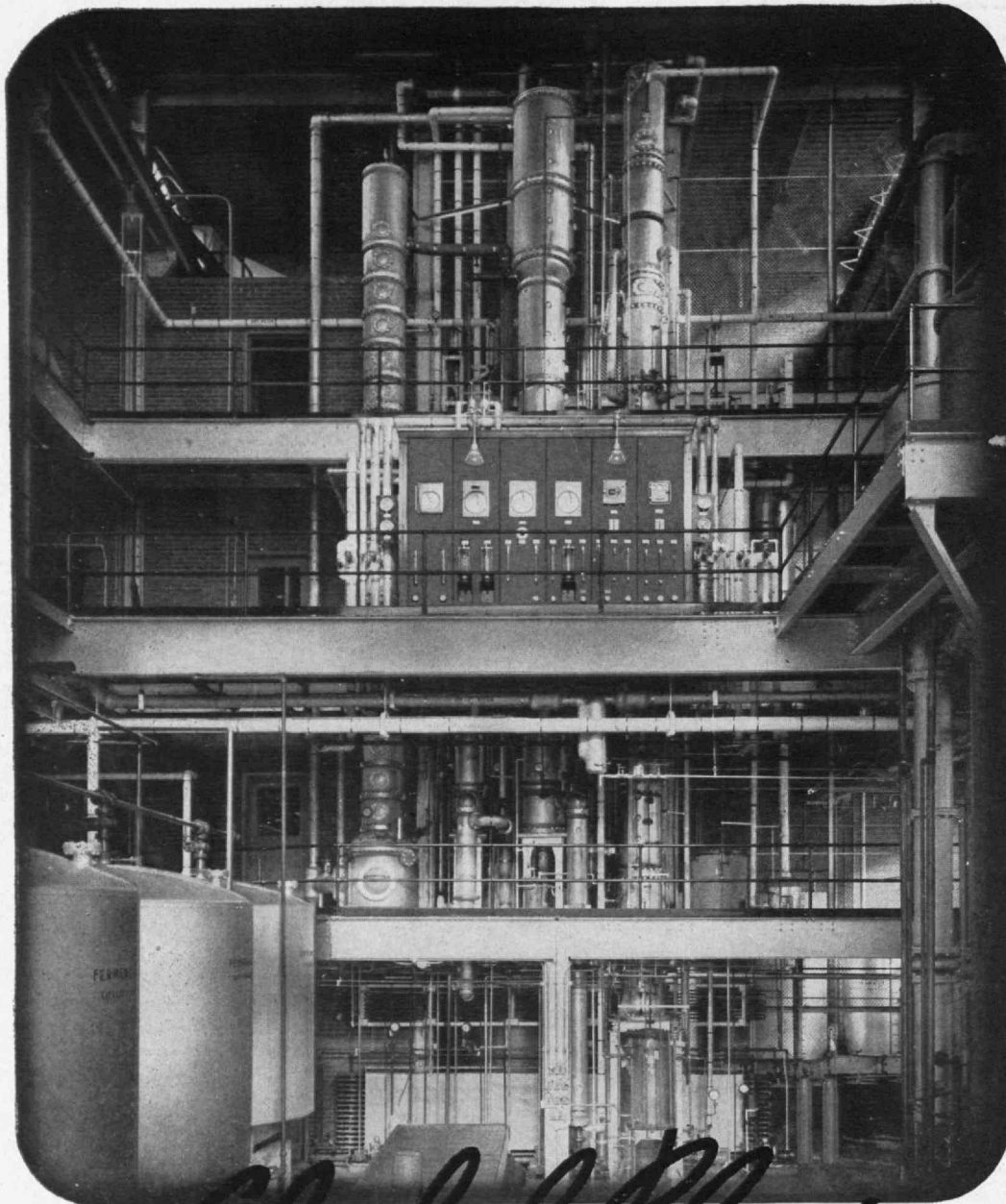
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THE TABULAR VIEW

Prediction. — The forecast that after this war the automobile will still purr over the highways is not one to elevate an eyebrow. But some of the attributes of that postwar car which WILLIAM B. STOUT foresees (page 125) suggest many a change from the things that are as well as from those that were. Mr. Stout's career as an engineer and designer — his *Batwing* was the first American commercial monoplane; he was a primary figure in the development of the Ford trimotored transport plane; his Stout Engineering Laboratories, revived in 1929, are nowadays busied with transportation research on airplane, railway, and motorcar developments — centers unusual interest in what he has to say concerning the car which John Citizen may drive a few years hence. Chief engineer for the Scripps-Booth organization some 30 years ago, Mr. Stout has known automobiles and airplanes alike during their formative periods.



Comestible. — The last time that famine stalked a weary world as one result of a war forced on the democracies by aggression and ideological buncombe, SAMUEL C. PRESCOTT, '94, then Professor of Industrial Microbiology at the Institute, served as a major in the Sanitary Corps of the United States Army, being in charge of food research and the problems of storage at the Army training camps. Named chief of the division of dehydration of the Bureau of Chemistry in Washington as a consequence of this work, Dr. Prescott pushed progress farther in methods of handling food-stuffs so as to preserve their quality and make them more readily transportable. Now as professor emeritus and honorary lecturer, Dr. Prescott is busying his "retirement" from the post of dean of science, which he held for 10 years following appointment in 1932, by a return to this service. Special consultant to the Quartermaster Corps of the Army, he is at work with his usual energy and enthusiasm in the rapidly expanding development of the manufacture of dehydrated foods both for the armed forces of the nation and for the peoples whom the Allies must rehabilitate. His survey (page 127) of the rebirth, growth, and stabilization of what may prove to be a postwar industry of first importance carries the weight of authority and the vitality of vigorous interest.

Redivivus. — Antiquary of aeronautics as well as active participant in many phases of the research and development contributing so greatly in these days to the advance of aviation, S. PAUL JOHNSTON, '21, is likewise a frequent contributor to *The Review*. From his ranging in the historical byways of the evolution of the airplane, he reports (page 130) the little-known resurrection of the work of an almost forgotten pioneer, telling how an airplane on paper was translated into an airplane in the air, how it flew, proved a theory, and then slipped again out of sight. His chronicle of Alexandre Goupil, Albert F. Zahm, and the resultant *Duck* is an interesting look into the past. (Concluded on page 114)



FLAMES THAT CUT TIME!

TODAY, ships are needed as never before. And today, ships are being built as never before . . . and built faster, stronger, and with less steel . . . thanks to welding!

But before welding can take place, steel plates have to have their edges beveled and squared-up so that, when butted together, they look like this:  or like this: 


In the past, preparing plates in this manner was done by heavy machine tools. Cutting was slow and costly. Each plate had to be handled many times. Plate cutting on this basis could hardly keep pace with welding today.

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electrical welding process that unites plates of any commercial thickness faster than any similarly applicable method . . . like this  . . . the Linde method of plate-edge preparation is working miracles in speeding up shipbuilding.

These two methods are also helping to break production records in other fields. Great pressure vessels . . . locomotive boilers . . . huge pipes . . . heavy chemical tanks . . . combat tanks . . . artillery mounts . . . and other vital equipment are being turned out faster because of them.

Linde research, intensified today, is constantly solving new problems in flame-cutting, flame-fabricating, and flame-conditioning of metals for war production.

The important developments in flame-cutting—and other processes and methods used in the production, fabrication and treating of metals—which have been made by The Linde Air Products Company were facilitated by collaboration with Union Carbide and Carbon Research Laboratories, Inc., and by the metallurgical experience of Electro Metallurgical Company and Haynes Stellite Company—all Units of Union Carbide and Carbon Corporation.

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THE TABULAR VIEW

(Concluded from page 112)

Sometime editor of *Aviation*, formerly co-ordinator of research for the National Advisory Committee for Aeronautics, and now with the Curtiss-Wright Corporation, Mr. Johnston is the author of books and numerous articles.

Challenge. — Architects, praise be, are articulate, and their art is prolific of issues provoking discussion. The medium they use is the physical, tangible one of brick, stone, steel, timber — as bluntly objective a group as ever metallurgist or mechanic confronted. But the informing discipline which guides expression in that medium is a complex of concepts intangible and elusive as the most recondite of atomophysical theories, and complicated beyond these by heavy and inevitable admixture of the societal, the familial, the personal, and the subjective. Probably it is because of this paradox that architects can so readily be articulate and, readily waxing hot in debate on the problems of their art, can yet attain vehemence without rancor. The Review often in the past has been vehicle for forthright pronouncements on the major architectural issue of our days — that of functionalist modernism. In this Review (page 133), a trenchant essay challenges vigorously some of the surrenders which that doctrine of design may be regarded as demanding. The author is LOUIS LA BEAUME, fellow of the American Institute of Architects, who has been in practice for nearly 40 years in St. Louis, where hospitals, churches, schools, and numerous other buildings fill the roll of his works.

Chroma. — A problem of many years' standing was settled in New York recently with the announcement of an American war standard of color specification. This event, in which Technology has a close interest, is discussed for The Review (page 122) by BEVERLY DUDLEY, '35, managing editor of *Electronics* and skilled writer on subjects in electricity and optics.

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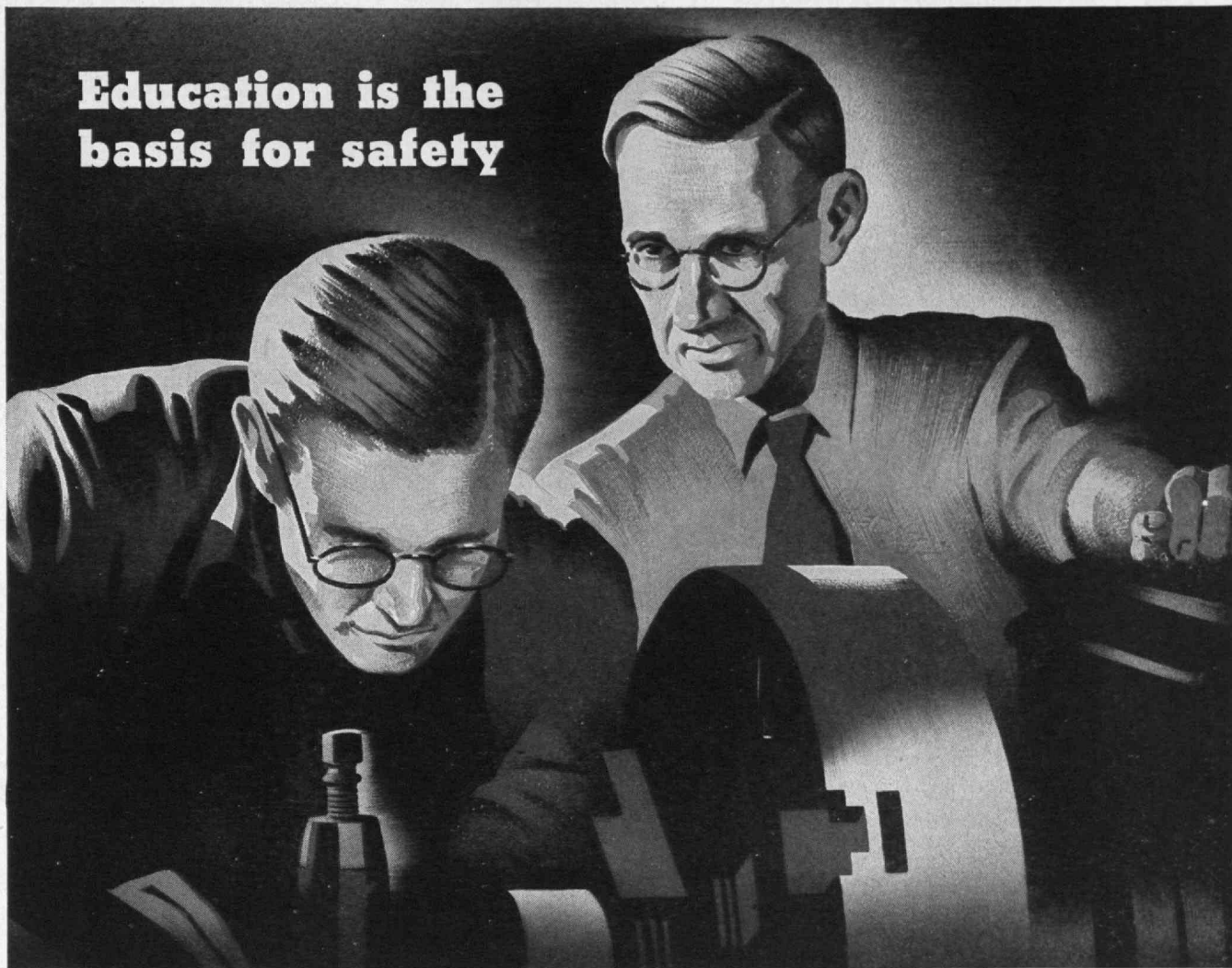
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INDUSTRIAL CONSTRUCTION

Alfred T. Glasett, '20, Vice President

Education is the basis for safety



Information supplied by the National Safety Council

Labor, particularly inexperienced labor, cannot be expected to recognize the full penalties of carelessness in the shop. Management has assumed the responsibility of supervising safety measures, and has cooperated in establishing sound safety rules.

Nevertheless, the large increase in labor personnel due to war needs, plus the influx of inexperienced men, have resulted in a substantial increase in lost time accidents.

Even assuming that the obvious safety measures with regard to operating machinery, electrical equip-

ment and shop traffic have been installed, two factors — education and eternal vigilance — determine the real effectiveness of any safety program.

Both are the responsibility of the supervisory staff, from foremen up. The foreman who does a thorough job of educating his particular group in safety rules and cooperative enforcement has done much to cut down accidents. Management that takes an active interest in both safety education and the enforcement of safety measures has taken a great step forward in reducing wastage of irreplaceable production time.

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Maybe he's *your* boy

IT seems only yesterday he was a gawky schoolboy, all hands and feet and tousled hair.

Even then you worried a little, parent-like, about how fast he drove his battered jollop.

Now he's flying—or soon will be—the deadliest weapon in the air, a sleek 400-mile-per-hour fighter.

Or perhaps his battle station is the bombardier's "barber chair," or the tail-gunner's "goldfish bowl" in a giant bomber, or at the controls of a U-boat-hunting blimp.

Whatever his duty, more than your fears and your prayers fly with him—all your hopes, all your dreams for him and for your country ride in that aircraft, too.

What cost of effort or zeal or self-denial is too great—if it will give him the finest plane, the safest equipment in the air?

We feel the same way about it here at Goodyear Aircraft. Many of our men and women have sons, or brothers, or husbands, in the air forces, too.

And beyond this there is the sober knowledge, clear now to all Americans, that our cherished liberty, our standard of living cannot be secure again until this nation wins command of the air—and it is these boys who must win it for us.

It is for them, your lad and ours, that Goodyear aircrafters—welders and riveters, pressmen and foremen, engineers and executives together—are striving with all the skill and ingenuity of long aeronautical experience to help build the safest, sturdiest airplanes and airships modern engineering can create.

It is to give them mastery of the skies that we are working in round-the-clock



shifts, seven days a week, to produce our full share of the airplane subassemblies—wings, tails, control surfaces, cabin units, wheels, brakes and other parts—for the 60,000 airplanes America must have this year.

In this we are working with and for the manufacturers of some of America's most famous battleplanes, both fighters and bombers, that are proving their superiority on all fronts.

If your boy is flying one of them, you can be sure his craft is as staunch and airworthy as scores of great American industries cooperating together can make it.

For these boys, yours and ours, are the

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hope of America, the guardians of the greatest heritage ever given to any people. They will not fail us, nor we them.





William P. Rivers, '26

The tower of a Hindu temple at Brindaban in India, popular place of pilgrimages associated with the cult of Krishna as a youthful shepherd

THE TECHNOLOGY REVIEW

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From a photograph by Ronny Jaques from Black Star

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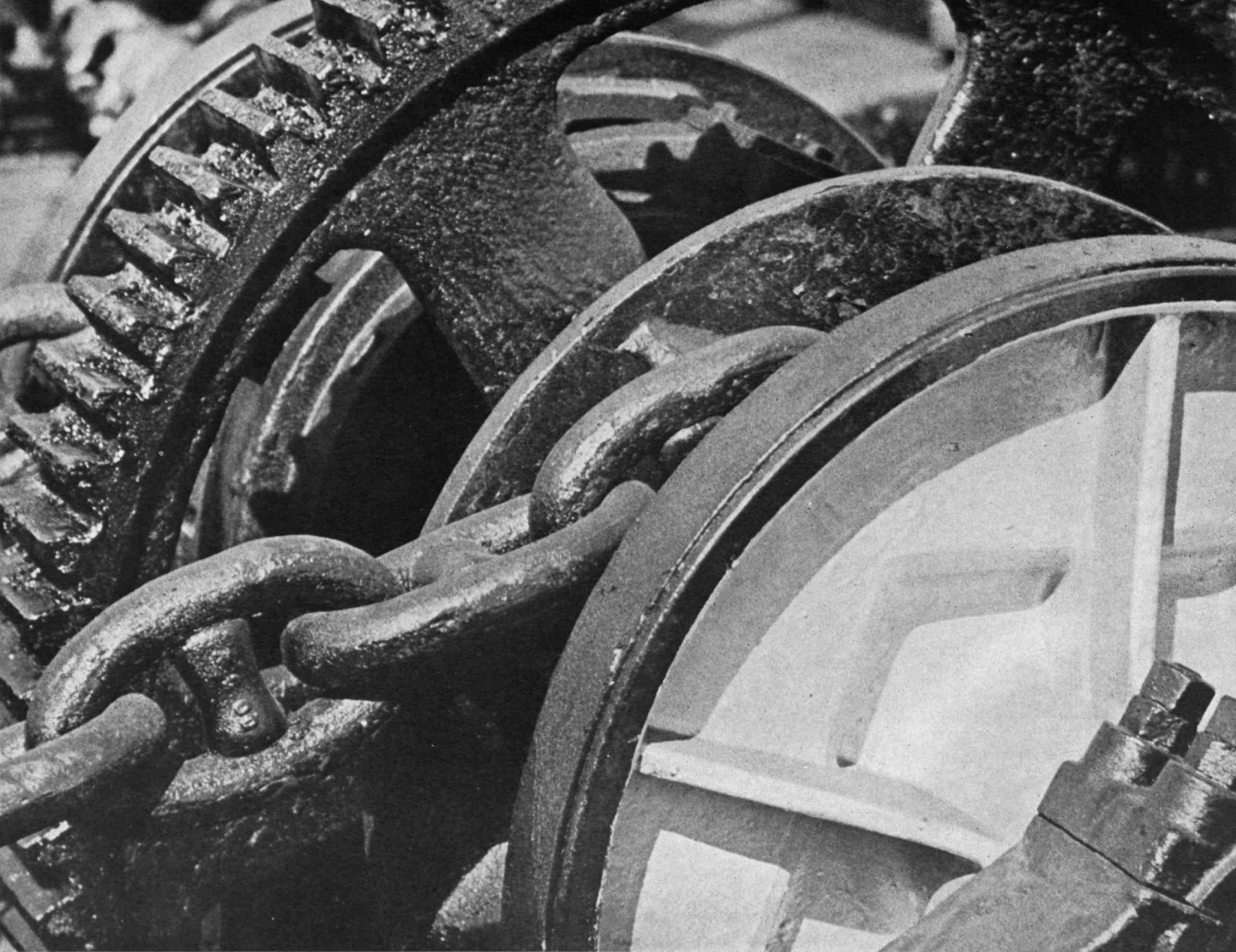
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Raymond B. Collier, '20

*A chain hoist — strength
literally and photograph-
ically*

THE TECHNOLOGY REVIEW

Vol. 45, No. 3



January, 1943

The Trend of Affairs

Retrospective Prospectus

EVERY year of course is the anniversary of scores of events, all of which one would at first thought expect to see catalogued in any summary of the distinction of a new year at its opening. But ragged anniversaries — the 11th, the 19th, the 137th, for example — somehow ruffle the aesthetic sensibilities of the human mind. Man likes to impose some kind of order on the disorderly, whether the annals of history or the odds and ends piled in his pre-war attic. Hence his liking for even numbers, for rounded cycles, and for anniversaries reckoned at least on a decennial basis and, when possible, centennially. Hence also, perhaps, his usual practice of surveying the anniversary values of any particular year in its January rather than its December. Or maybe this last quirk results from the fact that man is, or fondly believes he is, "forward looking." That assumption is warming to the heart, anyway. Therefore we shall assume a forward-looking point of view for a backward look over decades which end in -3.

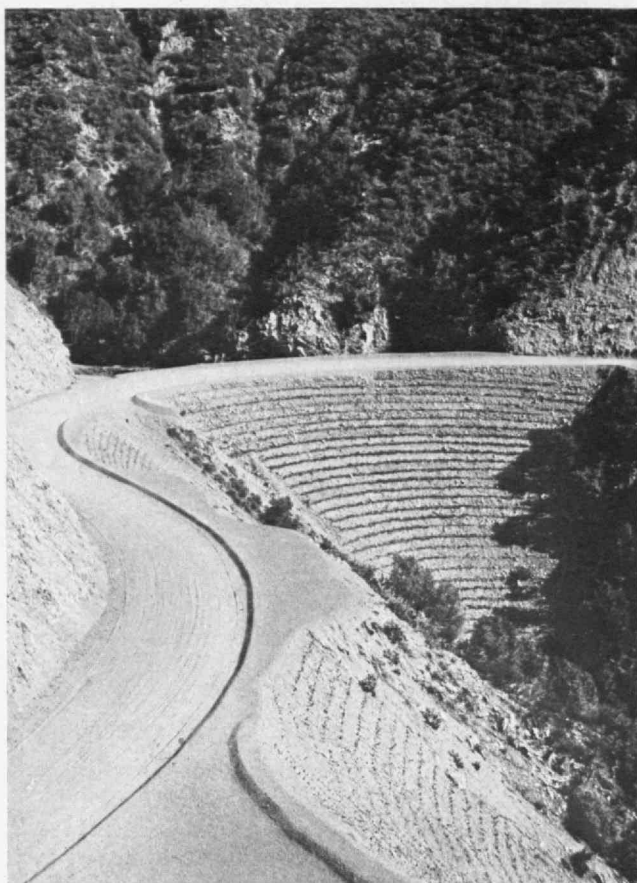
The age-old fallacy of *post hoc, ergo propter hoc* should worry all compilers of anniversary lists. Nevertheless, one may hope there is significance in the fact that 453 saw the death of Attila the Hun. Only 390 years after the extinction of this scourge, the Treaty of Verdun in 843 divided the empire of Louis le Débonnaire among his three sons, establishing a system which crystallized in French France, German Germany, and tragic Alsace-Lorraine crowded between them, fertile soil for the roots of war. Six centuries and a decade more — 1453 — Constantinople fell to the Turks, causing a flight of Grecian scholars to Italy, with consequent impetus to Grecian studies in the Italian universities. Forty years thereafter, Pope Alexander VI drew the line of partition of 1493, which compromised Spanish claims in the New World, based on the discoveries of

Columbus, with Portuguese claims based on discoveries by various other navigators in the Atlantic.

Coming thus closer home, one must note 1713, when Great Britain became established at Gibraltar by virtue of the Treaty of Utrecht ending Queen Anne's War, in which the American Colonies had struggled against the French and Indians, and, through the cession of northerly territory to Great Britain, beginning the construction of Canada as we know it. Twenty years more, and Georgia, the last of the 13 original Colonies, was settled; a generation further, 1763, and the cession of additional territory by France to Great Britain in the Treaty of Paris confirmed British dominion in Canada, even as it precipitated the conspiracy of Pontiac. Ten years, and 1773 saw the Virginia Assembly name a committee of correspondence, Daniel Boone settle in Kentucky, and Bostonians hold a tea party at the harbor.

Another decade and another Treaty of Paris recognized the independence of the United States of America. Two decades more — 1803 — saw the United States advance toward stability through the Louisiana Purchase. Another score of years, 1823, and the nation assumed responsibilities as a world power through the enunciation of the Monroe Doctrine. Thirty years later, in 1853, the American Commodore Perry, with four vessels, entered the harbor of Yeddo, Japan, later to return and conclude a treaty. A half century onward, and Japan in 1903 was in the midst of a crisis with Russia, whence war was to eventuate.

Such are some of the chronological cycles of international affairs which will coincide in the year ahead. In the history of science and technology, 1943 will witness the 400th anniversary of the death of Nikolaus Copernicus and the publication of his momentous volume, *De revolutionibus orbium coelestium*, in 1543. A half century later, in 1593, Galileo devised a thermometer, and a half century farther on, in 1643, Torricelli



California Highways and Public Works

That the works of man can embellish nature is generously demonstrated by California highway engineers with terraced fill and a spillway entrance beside a curving road in rugged country . . .

invented its traditional mate, the barometer. A century more, 1743, saw the birth of the French metaphysician Condorcet; of his great compatriot, the chemist Lavoisier; and of the German chemist Martin Klaproth, who was in 1803 to discover the element cerium. The balloon of the Montgolfier brothers dates from 1783, when d'Elhujar discovered tungsten. Ten years later, Eli Whitney invented the cotton gin and Alexander Anderson made a wooden tobacco stamp in New York, the first wood engraving making use of the intaglio "white line" principle. In this same year, 1793, the first wool-carding machine was constructed at Newburyport, Mass.

As we go into the Nineteenth Century, the annals of science and engineering are studded thicker and thicker with notable anniversaries. The first to fall within our decennial classification was the birth of Henry Bessemer in 1813, during which year there was incorporated in Massachusetts the first cotton mill in which the entire process of manufacture, from spinning to weaving, was carried on by power. Ten years later, in 1823, Faraday liquefied chlorine, carbonic acid, and other gases; commercial manufacture of quinine sulphate was begun in New York; and an inclined plane for canals was invented by James Renwick. George Stephenson of locomotive fame patented in 1833 an air brake for railways and a steam whistle for locomotives, and James Bogardus invented a dry gas meter to record the consumption of

illuminating gas in dwellings. The first tenement house in the United States was built in New York in this year, during which also the Welland Canal was completed, and the first soda-fountain patent was granted in the United States.

The year 1843 saw the death of lexicographer Noah Webster and the birth of agriculturist Stephen Babcock, deviser of the Babcock test for determination of the butter value of milk. In this year likewise, Samuel Colt laid in New York harbor the first American submarine telegraph cable for commercial use, an American patent for a typewriter issued to Charles Thurber, and the first iron steamship was built in Great Britain.

Invention of the arc-type electric furnace marked the next decennial year, 1853, when New York had its first world's fair, an aftermath of the famous Crystal Palace Exposition in London two years before. Leo Hendrik Baekeland, the Belgian-American chemist whom we remember in the name Bakelite, was born in 1863. This was the year of the Battle of Gettysburg. It had notes of peace, however, in the first fire-extinguisher patent and the patenting of a file-cutting machine by Thomas Coldwell, who with George L. Chadborn five years later was to perfect a lawn mower. Likewise notable in 1863 was the valuable improvement which Thomas C. Wales made in the celebrated waterproof and coldproof overshoe he had invented five years earlier. The improved arctic resisted the tendency to tear apart on the upper edge and down the side.

Completion of the Hoosac Tunnel in Massachusetts was a famous event in 1873, when the steamship *Baltic*, 15.1 knots, was queen of the seas. This year saw the first cable streetcar in the world go into service in San Francisco and the automatic car coupler patented by E. H. Janney. Willis' invention of the platinotype photographic process in England was a hint of things to come.

The completion of the Brooklyn Bridge was a major occurrence of 1883, which was also the year of the adoption of standard time and of the recognition of the diphtheria bacillus by Klebs. Ten years later, 1893, the Great Northern Railway had crossed the Rockies, establishing service between Puget Sound and the Twin Cities. In this year, the World's Columbian Exposition was held at Chicago, occasioning the issue of the first commemorative stamp by the United States Post Office. Edward G. Acheson patented his process for the manufacture of carborundum during this year, which also saw the testing of the first Diesel engine.

The Wright brothers made their famous first flight 10 years later, in 1903, the year of nitrogen fixation by means of the electric arc, and the year when Tom Fitch and Marcus Kraarup made the first transcontinental automobile trip, from San Francisco to New York, in 61 days. It was in this year also that the Iroquois Theater holocaust in Chicago underlined fire-prevention engineering, an emphasis tragically revived in Boston only a few weeks ago. Record production of 1,000 automobiles a day was attained by one company a decade later, in 1913, the year of the Schick test for immunity to diphtheria, of the first successful undersea photographs, and of the mysterious disappearance of Rudolf Diesel from a Channel steamer while he was en route to London to attend a meeting of manufacturers and to

confer with the British Admiralty. The first use of a bomber in war occurred in this year at Guaymas, Mexico, rebels being the recipients of the bombs, which were dropped by a French flier in the army of President Huerta. The first automatically opening parachute was invented in 1913 by Glenn L. Martin, who predicted in an interview that parachute troops would play an important part in future wars.

Another milestone in the history of the automobile was recorded ten years later, in 1923, with the appearance of the first closed cars to sell for less than \$1,000 and with the first marketing of ethyl gasoline, at Dayton, Ohio. The electrical art was rapidly developing in these years: 1923 witnessed the construction and use of the first efficient radio knife to replace the scalpel in surgery, and the first chain broadcast, between New York and Boston. The first regular through day and night United States transcontinental air-mail schedule went into operation in 1923, which likewise saw the red flare of the first neon sign, on a New York theater marquee.

Radio telephone service between the United States and the Philippine Islands was opened only a decade ago, in 1933, the year when Wiley Post took off on the first solo flight around the world; when the steel top on the closed car was the latest thing, as was the built-in trunk; when the sodium vapor lamp, installed near Schenectady, first cast its yellow glow athwart the night; when repeal ended what some refer to as "the great drought."

Rose-Colored Glasses

TO glass, the future looks rose-colored. Well prepared by research and fortified with new products, it is not only playing its part in the war effort but also replacing various metals in applications many of which may be retained in the postwar world. Made entirely (or at least the great bulk of it) from domestic raw materials—mainly sand, limestone, salt, and borax—it is not merely cheap; it is relatively abundant, the supply being limited only by production facilities.

With tin and steel on the critical list, glass must bear a greater share of the food-packaging load. Another, and at first sight an odd, field into which glass (chiefly the borosilicate or pyrex varieties) has been infiltrating for some time is that of machine parts. The oddness arises from the fact that glass has almost no ductility and therefore no ability to relieve stress concentrations in the usual way. Thin and unblemished fibers of glass have shown tensile strengths of 2,000,000 pounds per square inch, an extraordinary figure, but merely to touch the fibers with a finger and produce a trace of corrosion on the surface reduces the strength immediately to less than 5 per cent of that value. By allowing for its mechanical peculiarities, however, primarily by keeping tension and bending stresses at about 1,000 pounds per square inch, one can use glass successfully in such items as springs, rolls, pulleys, and spools. An entire line of glass centrifugal pumps is on the market, and glass floats, which have long been used to hold up fishermen's nets, are now replacing copper floats in hot-air humidifiers and toilet flush tanks. Plans are also under way to produce an electric iron with a glass soleplate.

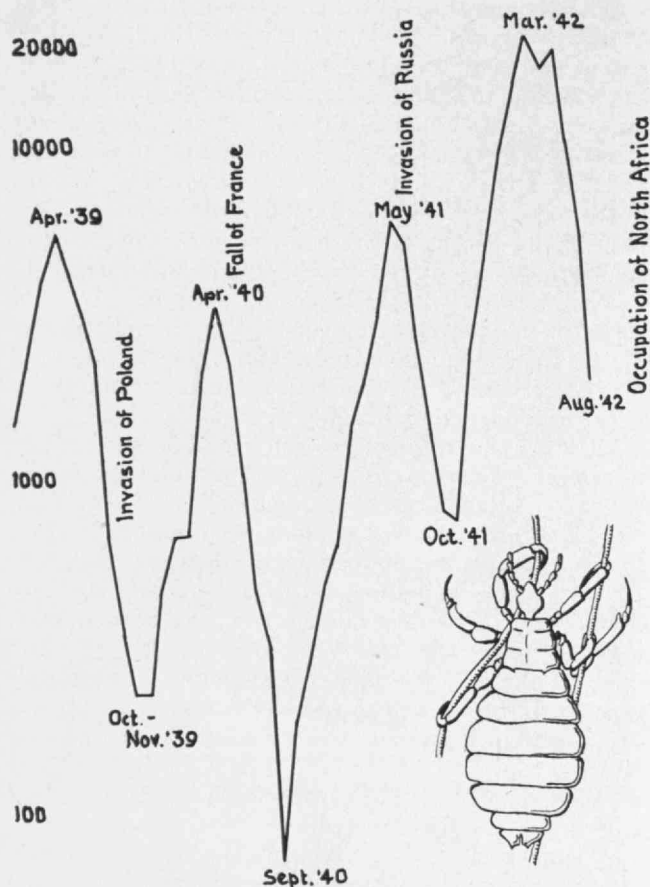
When shapes are simple, working stresses may conservatively be allowed to rise to perhaps 2,000 pounds per square inch through tempering or sudden cooling of the surfaces of the piece during manufacture. The all-glass doors more frequently seen on theater and store fronts are thus treated.

As glass kitchen dishes demonstrate, the borosilicate glasses have good resistance to thermal shock, and special glasses are now available which can be safely plunged into cold water while white hot. Coupled with the transparency of glass and its excellent all-round resistance to corrosion, exceeded for the better glasses only by the noble metals, the ability to withstand reasonable temperature changes is creating a large potential field for this material in piping. Not only here but abroad, glass is finding increasing use in the piping of corrosive chemicals and of milk and other food products. Germany is employing glass in domestic plumbing, as is the United States in at least one worker dormitory.

... Utility and beauty again are shown combined in another view of construction calculated to handle efficiently the sudden loads imposed by mountain storms.



California Highways and Public Works



Ebb and flow in the incidence of European typhus fever in the Old World as charted from available figures. The body louse which carries the disease from person to person graces the lower corner.

Marshal Louse

AMONG the four apocalyptic horsemen as Dürer depicted them and as the Spanish writer Blasco Ibañez evoked them in a memorable novel during the first World War, the repulsively smiling rider of the white horse is Plague, whose brass quiver is filled with the poisoned arrows of disease. In this second World War, he has been grimly at work, and again the deadliest of his pestilential arrows is that of typhus fever, and his chief adjutant is the infected body louse, which carries the disease from one person to another. But in this war a major weapon of Axis propaganda has been the suppression of information as well as the trumpeting of lies; facts about disease have been withheld for the obvious reason that they might disclose weakenings of morale if not of the military establishment itself. Hence measurement of the depredations of Marshal Louse is at best an approximation. From figures in reports of the United States Public Health Service, however, a reasonable charting can be made.

Since the movement of people and the deterioration of economic status resulting from war seem to be the chief bases for the increase of typhus, it was to be expected that with the invasion of Poland in September, 1939, some increase of the disease would follow. Reports leaking out of Poland, but without any definite figures, showed that a rise did occur, although as far as specific

information was available, no increase was recorded. The complete cessation of reports from eastern Europe, brought about by the Germans' refusal to divulge any statistics on disease since the beginning of the war means, then, that the apparent decrease of typhus in 1940 which appears when statistics are charted is certainly illusory. The extraordinarily low report in the late summer of 1940 can probably be explained by the fact that Germany then controlled all the chief typhus-producing regions of Europe — the belt from Latvia to Yugoslavia and the northern Mediterranean basin.

Why, then, the threefold increase beginning late in 1941? Tremendous numbers of cases on the Russian front have been suggested as the reason. Those that felled Nazis or their allies — which normally would have been suppressed — got into the record because of the fact that the victims were sent for recuperation to French North Africa, from which part of the world fairly good reports have been regularly received.

It is a permissible speculation, moreover, whether the timing of the Allied occupation of Algeria and Morocco was not in part determined by the seasonal drop in typhus, which reaches bottom in October or November.

Standards to the Colors

BY BEVERLY DUDLEY

DEPENDABLE designation of a color has long been a difficult problem. The true nature of color, of course, was discerned as long ago as the time of Newton, but Newton's refraction of a beam of white light into the rainbow spectrum of visible colors, even though a positive advance, did not by any means make possible the specification of color. More than a century ago, the discovery that all color sensations can be produced by the admixture of three basic stimuli brought about a great simplification in the description of color. After that discovery, specifying a color in terms of the amounts of three primary colors composing it was theoretically possible, but full effectiveness had not been won, because the three primary colors themselves had not been standardized.

Naturally enough, a great deal of research on the specification and designation of color grew out of this impasse. Three independent groups of color specialists arose as a result. The physicists, seeking to analyze color into its elementary components, devised methods of specifying colors by means of the coefficient of reflection or transmission for each of the wavelengths of the visible spectrum. Their concept of color had back of it the weight of scientific authority and permitted the complete and permanent record of any color that had once been produced and analyzed. But their method of determining color required a long and tedious procedure of analysis. The practical difficulties encountered in this process of spectrophotometry were largely overcome about 1929 with the development of the automatic spectrophotometer by Arthur C. Hardy, '18, Professor of Optics and Photography at Technology. By means of this electronic device, any color sample could be automatically analyzed and its "fingerprints" could be drawn for permanent record on a sheet of graph paper.

The physicist thus had a complete permanent record of the color. The objectively accurate curve, however, remained incapable of suggesting the subjective impression of what the color of the sample "really was."

The second group of color specialists were the psychophysicists, who followed the theories originated by James Clerk Maxwell and customarily thought of color in terms of its tristimulus values, or of the proportions of the three primary colors composing it. This group came to recognize the necessity for analyzing color into its elements and the further necessity for specifying color in terms of the sensations produced under standard conditions of viewing. Basic psychophysical methods were evolved for specifying a color in terms of three primaries, the amount of each being calculated from spectrophotometric data.

The psychologists composed the third group of color specialists. They were concerned with the subjective relations of color sensations and were little, if any, concerned with the reflection coefficients of the physicists or the tristimulus values of the psychophysicists.

As long as these three groups each went its own way, there was little hope of achieving a generally satisfactory common basis for understanding and specifying color. To attain that purpose required the full co-operation of all three groups.

Just exactly this has been accomplished in the establishment of the American War Standard for the Specification and Description of Color, approved June 17, 1942, and formally announced by the American Standards Association in New York on November 30 at a meeting attended by some 400 representatives of industries to which color is of primary importance. Presiding at the meeting, Rufus E. Zimmerman, '11, President of the American Standards Association, outlined the formal steps taken by the association to insure that its standards shall be carefully considered during formulation and will receive general recognition and adherence when promulgated. The purpose of the standard announced is "to recognize and recommend a basic method for the specification of color, and to facilitate its popular interpretation."

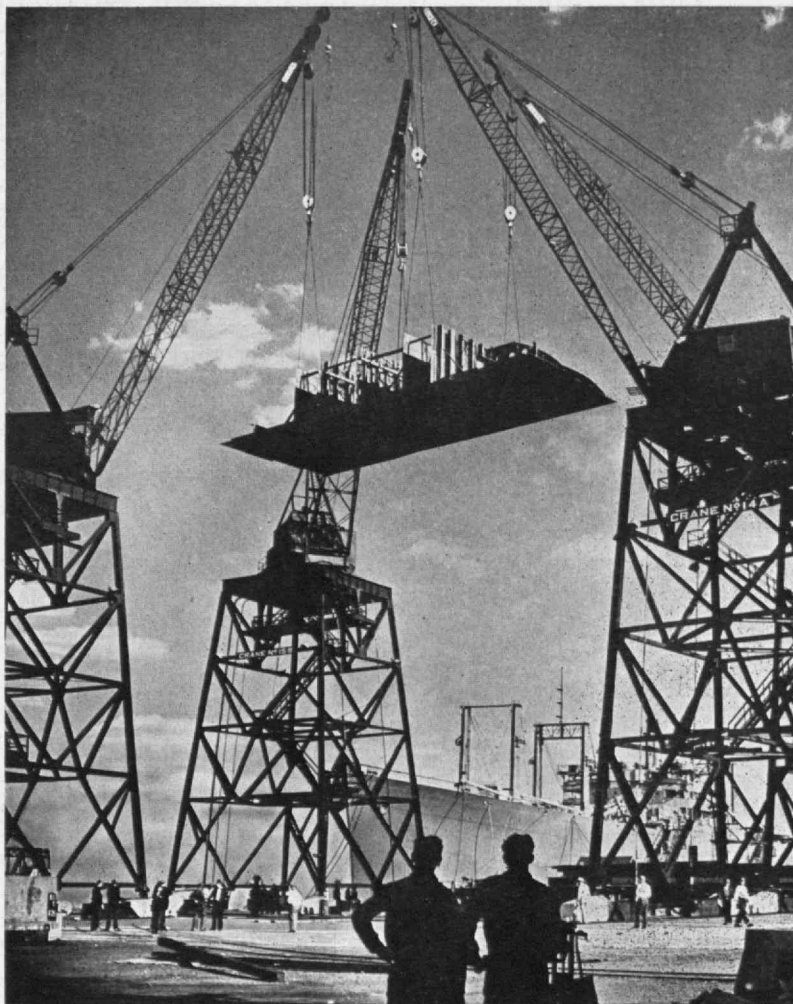
The great merit of this standard, which is expected to put color specification on a more scientific and practical basis, is that it correlates the three points of view which have been sketched. The A.S.A. specification recognizes the spectrophotometer as the basic instrument for the evaluation of color and thereby gives the specification of color a permanent and scientific foundation. At the same time it provides for the popular identification of color through the use of material standards. The only system of material standards which has been calibrated in terms of the basic specifications is represented by

A shaft-tunnel flat section, part of the "first storey" of a ship, goes through the air on the way to its place in a growing vessel. It weighs about 65 tons. Its area is about that of a singles tennis court.

the 1929 edition of the *Munsell Book of Color*. The Munsell system of designation provides numerical specifications for the hue, value, and chroma — or degree of saturation — of many colors. These numerical specifications are parameters acceptable to the psychologist. The nearly 500 color swatches of the Munsell system were analyzed spectrophotometrically in 1935 by two senior thesis students at the Institute, James J. Glenn and James T. Killian, under the direction of Professor Hardy. By computation of the corresponding tristimulus values, the Munsell system is now redefined in terms of the basic color language and is forever immune to the ravages of time.

Reference to a particular color swatch in the Munsell book enables the user of color to specify the color in Munsell notation. At the same time, because the Munsell system has been calibrated in terms of the basic language, the color can be alternatively specified in terms of its tristimulus values. Conversely, the physicist in spectrophotometry who has been accustomed to deal with spectrophotometric data can translate his results into the basic psychophysical notation or into the Munsell notation as desired.

In the establishment of this American war standard, then, none of the individual components is new. The importance of the accomplishment does not reside in the invention of any new link in the chain but rather in the correlation of the three essential points of view and



Federal Shipbuilding and Drydock Company

the assurance that specifications used by one group can be properly interpreted and evaluated by another group. The problem of color specification is always important. The culmination of the work of the American Standards Association in obtaining approval for this standard comes at a propitious time. It is essential that articles manufactured at different times and even in different plants match in color when they are assembled at some central location. Moreover, to complete an appropriate specification of color has important war significance in minimizing the rejection of articles which may not be within the desired color tolerances.

Electrotinning

WHILE most of the electroplating industry fasts, another and new section of the industry is feasting, and by reason of the same circumstances. By and large, the plating industry is operating at less than half of capacity because metal shortages permit only the most necessary of war jobs to be plated. On the other hand, a great expansion is occurring in facilities for electro-tinning strip steel. The food industry must be kept supplied with containers; in so far as steel containers will be used, tin is still the only universally practical coating; and electroplating will stretch the available supply of tin much farther than will the conventional hot dipping process. Therefore, whereas two electro-tinning lines were in operation during 1941, some 14 were running by the end of 1942, and 26 are planned for operation by the middle of this year. It is estimated that during the present year almost half the output of tin plate in the United States will be produced by plating.

The advantage of plating a strip of steel with tin rather than running the steel through a bath of the molten metal is that a coating of given protection requires application of a much smaller weight of tin by the electrolytic method. Though the strongly adhering electroplated coating is quite uniform in thickness, the dipped coat, because of uncontrollable variations, has an average thickness about three times as great. Dipped tin plate of the type used in food containers requires 1.25 pounds of tin per 100 pounds of the product; electro-tinned plate needs only half a pound. If the tin plate is to be used for dry foods or other products not requiring the maximum of protection, even greater savings are possible, since much thinner coatings may be applied by plating than are possible with dipping.

This development parallels an older one in methods of applying zinc coatings. Here, too, when the shape of the article permits, a much thinner coating of zinc may be applied by plating than by dipping, with equivalent protection. The scale of the shift from dipping to plating, for tin, is indicated by the United States Steel Corporation which expects plating lines costing about ten million dollars to conserve 6,750,000 pounds of tin.

The Pirotechnia

FIRST systematic treatise on metallurgy, Vannoccio Biringuccio's *De la Pirotechnia*, was published at Venice in 1540, the year after its author's death. Now it is given its first complete translation into

English,* and with a scholarly yet sympathetic introduction, keen and helpful annotations, and useful appendixes appears in a limited edition of dignified format done by Carl Purington Rollins. The translators, Cyril Stanley Smith, '26, and Martha Teach Gnudi, performing a task incomplete since 1552 when Richard Eden ceased the translation which he had commenced, have made a distinguished addition to the available classics of science. Dr. Smith, who is a student of the history of metallurgy and a practicing metallurgist, and Dr. Gnudi, who is a student of Italian literature, are collaborators admirably fitted for the task of untangling the Sienese Biringuccio's vernacular Italian as presented in the unrevised 1540 text and rendering it precisely in direct working English. So doing, they have preserved the flavor of the original yet have held closely to their intent of presenting "precisely what the author said, not what a translator of a later century thinks he ought to have said."

And what this author said is of marked interest. Biringuccio's was the first printed book that sought to cover the whole field of metallurgy. Agricola thought well enough of it to incorporate sizable sections of it without attribution into his famous *De Re Metallica*. Biringuccio wrote with a plan clearly in mind; his book is orderly, his approach objective and systematic. He must have been a good teacher of his apprentices, for he shows in every turn of phrase a sincere anxiety that the reader shall understand what he has said, why he has said it, and how it bears on material later to be discussed. He draws generously on both his own experience and the experience of others as he was able to observe it during his active practice. Beyond this, he was 400 years ago setting an example of the insistence upon accuracy and care which marks good technological work today.

This translation of his work, issued by the American Institute of Mining and Metallurgical Engineers through the sponsorship of the Seeley W. Mudd Memorial Fund, is a noteworthy recognition of an able and ingenious pioneer.

Note to Philosophers

A NEW planet, the first to be demonstrated outside our own solar system, is reported by the Sproul Observatory at Swarthmore College. It is of course not visible, but its presence is deduced from the periodic meanderings of one member of the double star, 61 Cygni, in the relatively near-by constellation of Cygnus, the Swan. Because of its size, a mere 5,000 times or so larger than the earth, this stellar object is identified as a planet rather than a star.

The new planet differs from the earth in other respects than mass, for it has two suns, one revolving slowly about the other and each about three-fifths the mass of our own sun. The distance from the inferred planet to its nearest star is some 65,000,000 miles compared to the 93,000,000 miles which separate earth and sun, and an orbit of the new planet is completed in about five of our years. (Concluded on page 159)

*New York: American Institute of Mining and Metallurgical Engineers, 1942. 476 pages. \$5.00.

And There Shall Be Motorcars

Postwar Automobile Design Will Be Influenced by Present Trends in Aviation and by Legislation as Well

BY WILLIAM B. STOUT

WHAT the motorcar will be after the war depends to such an extent upon the time element that one might say the answer is "How long will the war last?" or "How old is Ann?" Technological things are happening so fast and in such dizzy sequence, each idea having its own influence on future design of all kinds, that one can merely indicate the trends suggested by wartime happenings.

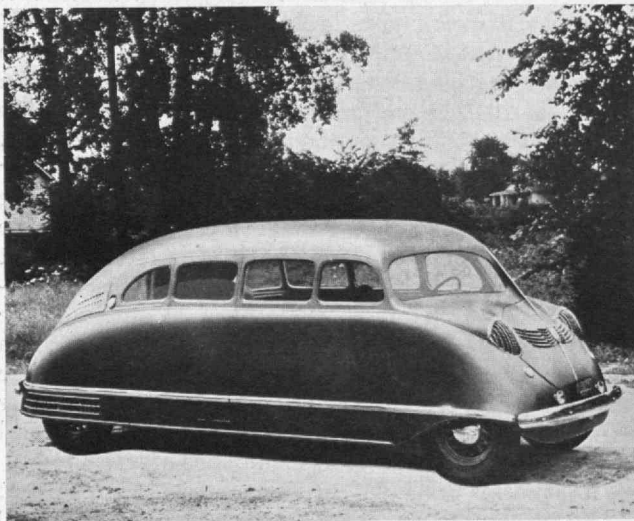
In the first place, the position of the motorcar in the hands of John Citizen following the war is going to depend entirely upon the wisdom or the asininity of our tax-making bodies. If they follow the European method of permitting luxuries for only the rich and tax a car on its design — or in any way limit design by tax structure — the car will be *designed by the tax assessor* and not by the engineer. The American system of leaving the engineer alone and, after his product is finished, taxing it through levies on gasoline or roads or service, will bring tremendously greater revenue and be felt less by the public. If the engineer is left alone and the manufacturer is allowed to build his cars as he wishes, then the motorcar will have a glorious revival when peace comes, and the autogiro, the helicopter, and the private airplane will take their places on their own merits and for their own special fields of operation.

The American people are learning from aviation the value of elimination of waste. Airplane design is teaching us to use every ounce and every cubic inch for some purpose. Efficiency in design has taken on a new meaning; many of the traditional approaches toward engineering are obsolete.

Even in architecture we have been swinging away from the decorative to the functional until now, as a result of our tremendous housing problems, we are learning to conserve every inch of living space in a dwelling rather than waste it on frills. Built-in kitchens, folding furniture, disappearing beds, and even folding houses are becoming the vogue for this emergency. The tiny-house trend is bringing hundreds of new accessories to fit it. Hence we are getting a new industry — sort of halfway between the old architecture and housing as we know it, and the trailer industry from which housing has adopted so much.

The same will be true in the automobile business, with the automobile designer adapting and adopting from airplane experience. In an airplane, one pound of weight is of tremendous importance; to carry around one pound of excess weight is a continuous source of expense to the operating company or owner. In a motorcar, 100 pounds of weight do not mean much; the owner pays for the gas to drag it around and does not think it important as yet. The airplane, however, is making him weight conscious: Knowing that airplane engines can be built with a weight of one pound per horsepower while his car engine weighs ten pounds per horsepower, he begins to wonder about the engineering ability of automobile designers.

A motorcar of the past, on a given wheel base, wasted a majority of the ground space occupied by the car — the long enormous hood to accommodate the tiny engine; the small amount of space left behind the hood to accommodate the passengers; the width that might



MacGregor

An experimental car, the Scarab, designed by the author. Its engine is housed at the rear.



Keystone

An old-timer, without windshield or doors, but possessed of four lamps and a nobby toolbox.



Interior of the experimental Scarab

be used inside but is wasted on running boards and fenders. All these things do not make sense to the airplane engineer, who is accustomed to using the entire volume of his craft for occupancy. Neither does the idea of two separate constructions — a frame below and a body above, submitted as a “unit” structure. Either the body should take all the load; or the frame, as on a truck, should be designed to take the load without the body. The two together fight each other and make bad engineering.

The balance in weight-location of the motorcar just “happened” and is not the result of research. The pre-war automobile, which just “grew up” to what it is, still shows a vast influence of the horse-and-buggy days. The postwar car will have half the weight of present-day automobiles — say 1,800 pounds for a five-passenger car or maybe even half of that. There will be considerable use of plastic materials in panels, body details, and so on, but not particularly of plywood. Wood in its natural form is too unreliable a material to have the necessary strength for safety characteristics. Plastic, however, shows great promise as an automobile material.

Engines will be air-cooled, since the war has taught us how to air-cool a motor much better than we can liquid-cool it. Liquid-cooled engines in all aviation activities have been of the pursuit type — short lived, of high mean effective pressure. Transports and long-distance bombers are fitted with the lighter, longer-lived, air-cooled engines. The radial engines give a maximum of cubic inches of displacement per pound of metal.

The liquid-cooled types, being much heavier, can only approach the weight-per-horsepower output of air-cooled engines by getting much more power out of every cubic inch. In other words, only by overloading

an automobile-type engine can an airplane engine be made out of it — and if it is overloaded, it becomes at the maximum a 50-hour engine. If this lesson is not absorbed by the automobile manufacturer, the air-cooled engine will be put into the automobile field by the airplane manufacturer, who has learned his lesson first hand.

Because of their light weight, engines will for the most part be located in the rear. Since their weight will be lighter, however, this relocation will not make so much difference in the balance as before. Instead of a long wasteful hood, symbolizing power and speed (things which no longer will be allowed on the road), power plants will be concealed and the entire car and floor space given over to passenger comfort. The width of the car from edge to edge will all be usable space, as will the entire length from front to rear. Cars will be on the same wheel base perhaps, but they will have far greater interior space and much more room for luggage.

With the adoption of wider bodies which come clear out to the edge of the running board, a higher roof will not look ungainly; hence ceiling heights will increase. Bodies will be smoothly contoured — though not necessarily in the streamline manner, which has little value in cross winds. Pointed noses will be avoided on account of the difficulty of steering in side winds.

The vision permitted in cars today is not sufficient: The corner posts get in the way, obscuring enough of the road to cause many crashes; there is not enough vision to the rear for safety. One way to eliminate present corner posts is to combine forward side windows and windshield in a single piece of glass or in two pieces meeting in the center of the windshield if it is a V windshield. This scheme would have vertical structural members within the front-door pillars. Another way would be to fabricate the corner posts out of transparent material. It is my belief that a new type of vision will be adopted for automobiles in the not-too-distant future — not by the addition of hot transparent tops but by the providing of more range at the rear and sides of the car.

There seems to be a tendency in the direction of greater political regulation of everything. From this tendency it seems quite probable that the *enforcement* of the present 35-mile-an-hour speed limit will have some bearing on future laws in all states, and it is a question whether motorcar drivers will be allowed to go more than 50 miles an hour after the war except on special roads. This limitation was being very seriously proposed even before the war came, and now the slowing down of traffic during the war will probably make the limitation permanent. If further restrictive laws limit the value of automobile transportation, then the engineering problems presented by the helicopter and the small airplane will require a wholly different approach — that necessitated by replacement of automobile travel with air travel. Hence how quickly the helicopter develops as an actual city conveyance will be influenced largely by the wisdom or the ignorance of legislators.

If, as seems probable, speeds on all roads will be kept down to 50 miles an hour after the war, an engine of 20 horsepower will be entirely sufficient for level country and 30 horsepower will be ample (*Continued on page 156*)

Dried Apples—1943 Model

Dehydration, of Increasing Importance in Preparing Wartime Foods, Gains in Stature as an Industry

BY SAMUEL C. PRESCOTT

HELPING to prepare dried apples as they were prepared in my boyhood was an experience to be remembered. Gathered in the warm kitchen on a late autumn evening, the family or perhaps a small neighborhood party attacked the baskets of ruddy Baldwins. One of the younger members ran the little paring machine which was screwed to the table top; others took the pared apples, trimming off bits of unremoved skin, quartering and cutting out the cores with their seed pips, stems, and bits of dead blossom, and removing bruises and imperfections caused by invading moth larvae. The next group, with darning needles threaded with twine, strung the pieces in long chains like a gigantic necklace. All that then remained was to hang the chains in long loops on a special frame or on nails driven into the walls of the shed or barn, where the bright autumn sunshine and the free sweep of the air could carry on the preserving process of evaporation *au naturel*.

Drying was undoubtedly the first method of food preservation to be applied by man, probably in imitation of the natural process that occurs in the grains and seeds of many plants — beans and peas, for instance — which dry while still attached to their stalks. Our forefathers along the New England Coast and elsewhere learned from the Indians how to prepare samp from corn and perhaps to dry herbs of various kinds. They also early began to dry split and salted codfish on racks, or flakes, spread on rocks where there was a good sunny exposure on fair days. Dried codfish prepared in this way was the first food product made in America for export and thus constituted our first real food industry in a commercial sense.

From these simple beginnings, it seems and actually was a long road to a real factory industry with scientific control. The primitive methods of the Colonials endured for about 200 years — in fact, still persist. But somewhere about the time of our Civil War, the process of evaporating such fruits as apples and peaches came into existence. The method, a small-plant operation, used special kilns or chambers in which the sliced fruit was spread thickly over perforated floors made of narrow strips or slats; warm air, produced by means of stoves or furnaces in a space below, was passed up through the mass of fruit; and the moist air caused by evaporation from the cut surfaces was removed through stacks at the top of the chamber. Some of these dried fruits and also small quantities of dried vegetables were used by the North during the Civil War to improve the nutrition of men suffering from scurvy and other diseases, but their success was not notable as recorded in the annals of the surgeon general.

The old type of kiln may still be seen in the great apple belt of central New York, along with the modern tunnel driers which have largely superseded it. On the rainless Pacific Coast, sun-drying of prunes, apricots, peaches, grapes, and pears was long practiced. Not until nature made a mistake and sent rain out of season did the drying tunnel become the regulation equipment for this business. Even now vast quantities of raisins and prunes are produced by sun-drying. The magnitude of the industry is not inconsiderable: California alone produces more than 500,000 tons of evaporated, or dried, fruit annually. All these products are sweet fruits, high in sugar content. When the 80 per cent or more water normally present has been reduced by evaporation to 18 to 25 per cent, the fruit will keep without spoilage if held in dry places, aided of course by the liberal treatment with sulphur dioxide given during the early stages of the operations to destroy the microbic and insect life constantly present on fresh fruits.

While this mode of preservation involves the drying out of a part of the water, it is not "dehydration" as the word is now used in relation to vegetables. In dehydration, a far greater amount of the water must be removed: At present some foods are not rated as dehydrated unless the moisture content has been reduced to 5 to 7 per cent, and for others the reduction must be even less. Dehydration in this sense and as applied to vegetables commercially is of comparatively recent development, although the process is in reality so old that references to it may be found in Pliny and other writers of ancient days. Someone remarked once that there is nothing new except what has been forgotten. This may perhaps be fairly said of dehydration.

Our interest today centers on the dehydration of vegetables, meats, fruit juices, eggs, milk, and similar products. Eggs and milk of course have been commercially produced in dry form for more than a quarter of a century. A very recent development in dehydration is the drying of meat in small pieces usable for stews, pies, and hash. Many tons of this material will soon be available for the food of our fighting forces.

Canning was the first great method of food preservation capable of being applied to all classes of foods — meats, fish, fruits, vegetables, and to combinations of these such as soups, stews, hash, and sausages. So useful was this method that it exceeded all others in importance for many decades. Refrigeration and its grandchild, quick freezing, have had an interesting and important part in the food industry.

Drying, older by far than any other process, was a neglected field. The drying of vegetables as we visualize the process today was apparently first carried out by an

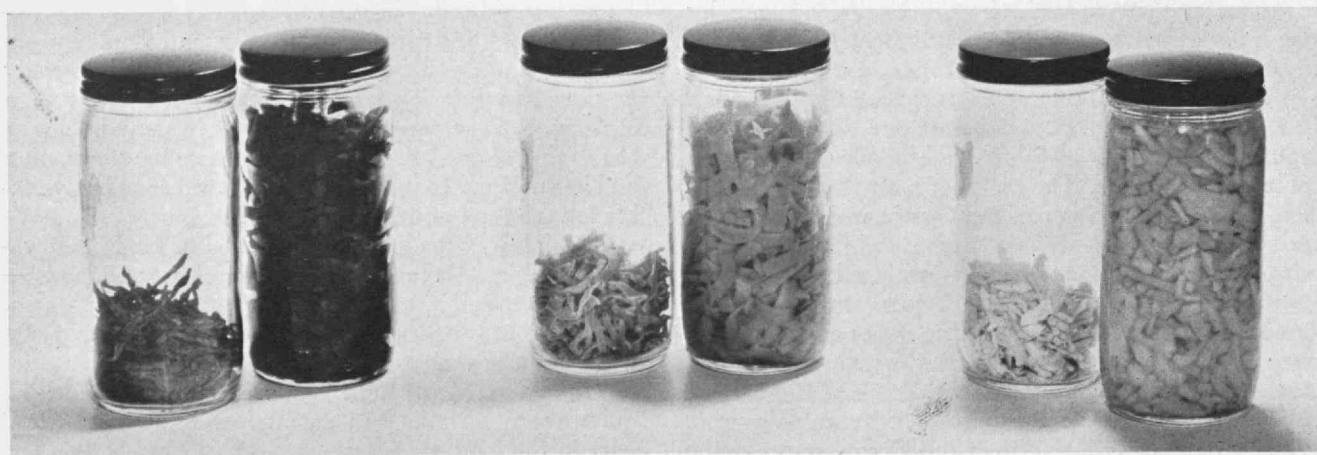
American living in Australia who about 1886 prepared dried potato and other vegetables for exploring parties and miners going into the desertlike and unproductive interior of that country. In the early Nineties, the drying of potatoes was begun in Germany. Some of the product found its way to this country and was sold to miners who were rushing into Alaska after the Klondike gold strike of 1896, when men had to carry on their backs or on sleds or other devices the food supplies which they would require. Since drying reduced both weight and volume, the advantages of the process were evident. A bushel of potatoes in dried form would weigh perhaps six pounds, and the product needed only to be soaked in water until rehydrated and then cooked to make a belly-filling article of diet.

Soon a few small companies in Washington and Oregon started manufacturing dried potatoes. Unfortunately their product was so heavily sulphured as to be far less palatable than it should have been, but at least it was edible and nutritious for a time although it developed poor flavor and disagreeable color with age. When the Spanish-American War broke out in 1898, the Navy purchased some of this dried potato, and on the memorable trip of the *Oregon* a considerable supply had been taken aboard. In the warm ship and damp sea air, it became dark colored, ill flavored, and uneatable, and most of it was thrown overboard.

The Boer War in South Africa reawakened interest in the drying of vegetables. At several plants in Canada and the United States (there were a few very small plants by that time), considerable quantities of dry soup mixtures of various vegetables in small pieces were prepared and shipped to the British forces, and were a welcome addition to the diet of the soldiers. After the war the business declined, but one manufacturer who had a large stock on hand packed it in paraffin-lined barrels and kept it in his storehouse. On the outbreak of the World War nearly 15 years later, it was sent to the British army and used by the men. The history of this material is cited as an example of the fact that dried products can be kept for long periods, provided they cannot absorb moisture or are not too much exposed to air.

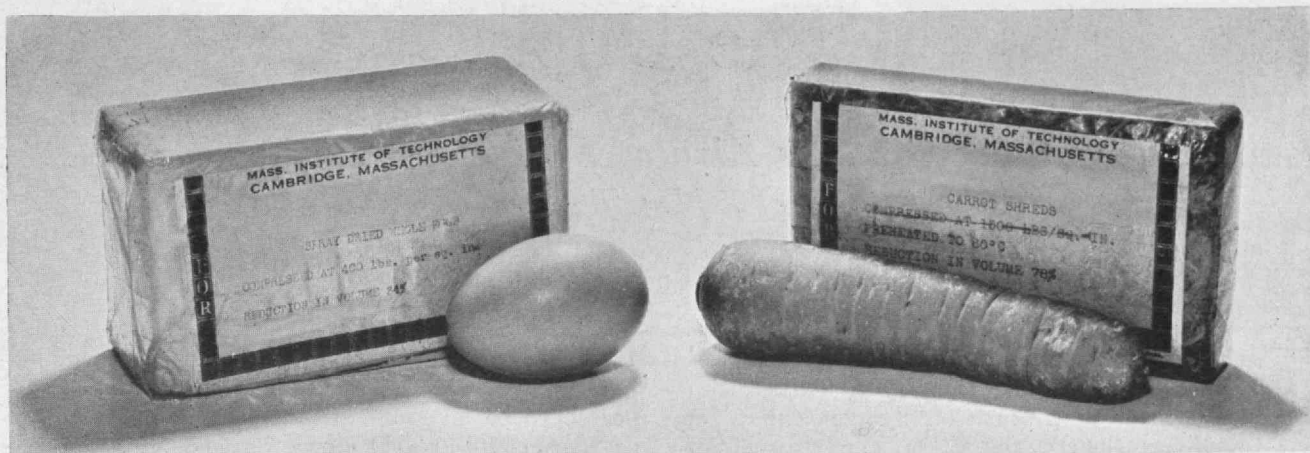
Wars have ever stimulated development in the food industry, for soldiers must eat and foods must be brought to them in quantity and, as far as possible, in the most compact and safely shipped form — canned products, for example. Our Civil War was the first great stimulator of the canning industry. The first World War greatly increased the interest in dehydration of war foods started by the Boer War. After we entered World War I and had noted British commissary experience, the question arose of supplying our armed forces with dehydrated foods. The Navy, possibly remembering the experience of 20 years before, was not interested in such a project, although some dried foods were purchased later. The Army Quartermaster Corps, abetted by the food division of the Surgeon General's Office, decided to try these foods, and contracts were made for millions of pounds to be sent to our men in France. As an officer in the food division, I had been working on these foods. We had been able to secure some high-grade products which had met the approval of Herbert Hoover, various cabinet members, and other top officials. When the demand for the enormous quantities required actually came, however, the high-grade products could not be obtained, and contracts were made with men who had large drying plants for other products but who had little or no knowledge of methods of producing good dried vegetables and no expectation of remaining in the business after the War. As a result, the vegetables sent to France were poor in quality, often badly or insufficiently dried, and therefore not attractive and palatable. Moreover, the Army cooks had had no experience with these products and often served incongruous mixtures very badly prepared. No wonder that men who were forced to eat them or nothing came home with unfortunate and rebellious memories. The result was what might be expected. The business all but died, not to be revived for another 20 years.

Despite this adverse situation, it had already been definitely proved possible to make excellent dehydrated products which, when suitably treated and cooked, compared favorably either with freshly cooked vegetables or with canned products. The chief drawback to the dehydrated products of 20 years ago seemed to be



M.I.T. Photo

Twenty grams of dehydrated beets, of dehydrated carrots, and of dehydrated onions are shown in the first, third, and fifth jars above. An equivalent amount of the dehydrated product is shown after rehydration in the second, fourth, and sixth jars. Dehydrated according to the best modern techniques, the vegetables are restored to plumpness, tenderness, and natural color by rehydration, which requires only a matter of 10 or 15 minutes.



M.I.T. Photo

One egg and three dozen eggs, one carrot and 30 carrots. Dehydration plus compression means great saving in shipping and storage space. Compressed at 400 pounds per square inch, the eggs in the brick above were reduced in volume 34 per cent from the powdered state, which had reduced them 80 per cent in weight from the original. The carrots, compressed at 1,500 pounds per square inch, were reduced 78 per cent in volume from the dehydrated shredded state, which had cut their weight 80 per cent from the untreated product. Bernard E. Proctor, '23, Associate Professor of Food Technology at the Institute, is continuing studies of compression such as produced these specimens.

that they required a rather extended soaking in order that water might be absorbed to replace that removed by evaporation and to bring the materials back to the physical state of plumpness and consistency in which they naturally occurred. The dehydrated vegetables of today, which have had a more scientifically controlled pretreatment, need only be put into warm water, brought up to a boil, and then boiled for 10 to 20 minutes. As some of the products are actually precooked, the time for rehydration has been much shortened. It seems not unlikely that the majority of dehydrated vegetables will in future be precooked before being dried, as they retain flavor and appearance well. The work of preparing them for the table would thus be reduced to treating them with enough water for complete rehydration and to adding the proper seasoning. Use of too much water, of course, results in the loss of minerals, salts, and soluble materials which so commonly are lost when raw vegetables are cooked in the home and the water in which they have been boiled is thrown away.

One form of dehydrated food, in fact, already is precooked. This is the dried potato known as "riced" potato, which, after being fully cooked, is extruded through orifices, as with spaghetti, and then dried. An excellent mashed potato may be made from this product through adding the requisite seasoning and water, heating, and beating or stirring vigorously to give uniformity and lightness to the mass.

To return to the history of dehydration, several factors conspired after the first World War to prevent a normal development of the industry. The first may well be regarded as the antagonism which had been produced in the minds of thousands of returning soldiers. Added to this may be mentioned the lukewarm and later negative attitude of the United States Department of Agriculture; the antagonism of the canning industry, which perhaps desired no competition from an allied industry; the unwillingness of financiers and banks to advance money for a project they assumed to be of questionable future success; and the obvious fact that there was no volume of good products on the market with which the consuming public could become acquainted. More-

over, we were at that time ignorant of some very important aspects of proper drying as it is now understood. We may pass over the years from 1919 to 1939 with the comment that only a few individuals and institutions kept up an interest and did constructive work for useful development of this great field.

AFTER the outbreak of World War II in Europe, interest began to revive. It became apparent that we faced a great problem in supplying food to Britain and other of our future allies. The shipping situation was acute. Saving of space and weight was all important. Again dehydration seemed to be the answer. The Army and Navy, knowing that foods are munitions as much as are tanks, bombers, and guns, looked to this means for supplying men who would be sent overseas, for it was evident by 1940 that America would eventually be in the war.

In 1940-1941 the Bureau of Agricultural Chemistry and Engineering hence appointed a committee of investigation and research, which began work at the Western Regional Research Laboratory in California, whence some excellent results have come. For months the United States, still at peace, sent great quantities of dried eggs, dried milk, and some other foods to Britain and elsewhere through the lend-lease program.

The treacherous attack on Pearl Harbor, the fall of Singapore, and the overrunning of the East Indies by the Japanese brought matters to a head, making clearly evident that every effort must be exerted to promote dehydration, for the main supplies of rubber and tin were lost to us, and the stock pile of tin in the United States was so limited that canning operations and can manufacture had to be very drastically curtailed. Obviously if we were to have an abundance of preserved foods, some containers other than tin cans must be rapidly developed. Canning was therefore largely confined to foods destined for the Army and Navy and to essential foods such as evaporated milk, strained and cut vegetables and fruits for young children, condensed soups, and a greatly reduced line of other foods. Many fruits and vegetables ordinarily (Continued on page 146)

The Duck

How Alexandre Goupil's Airplane Control Theories of 1884 Were Proved in 1917 Not Too Wide of the Mark

BY S. PAUL JOHNSTON

THE record of aeronautical research in the second half of the Nineteenth Century is littered with sketches and descriptions of "flying machines" of an astounding catholicity of pattern. The researches of Cayley and Henson and Stringfellow prior to 1850 had kindled a spark of hope that the age-long problem of flight for man was not completely insoluble. In the upswing of scientific interest that marked the early Victorian era, no scheme for aerial navigation was too fantastic to be put down on paper or to call for heated debate before the learned scientific societies of the day.

For the most part these ideas remained on paper and served only to supply material for writers of the Jules Verne school. There were a few exceptions. Horatio Phillips tested some of his airfoil theories with a tethered device that looked like a threshing machine on a circular board track. It never flew. Sir Hiram Maxim produced a steam-driven monstrosity that presently collapsed into a colossal heap of junk without yielding any information of permanent worth. Of the score who sought to solve the riddle of flight, not a single man in those days had the satisfaction of seeing the product of his sweat and imagining translated into stick and fabric and launched into the air in anything resembling controlled flight. (The French still claim that Clément Ader achieved that goal in 1886. All evidence of history fails to support the allegation, and the foregoing statement is hence offered without apology.)

One man, however, had he lived but a few years longer, might have proved an exception. His name was Alexandre Goupil. Could he have stood on a flying field at Newport News, Va., on a January morning in

1917, he would have felt that his dream of 33 years before had been vindicated. He would have seen what appeared to be an exact construction from his patent drawings of 1884 wobble down the field and take to the air under its own power.

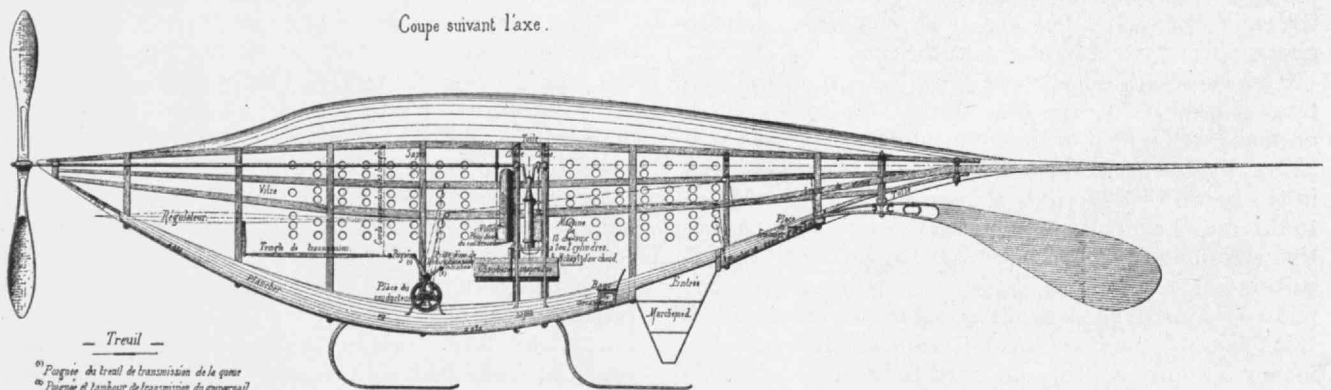
It happened this way. In 1914, Glenn H. Curtiss found himself on the losing end of a long court battle with the Wrights over the method of lateral control for airplanes. Even though his machines carried interplane ailerons operated by a yoke around the pilot's shoulders, instead of the hand-operated wing warping of Wilbur and Orville Wright, the courts decided that he was an infringer and ordered that he pay royalties on every Curtiss machine sold. This was a bitter pill. The Curtiss temperament rebelled violently. G. H. was a fighter with a dogged determination not to be licked. Besides, it would cost him a pretty penny, for the outbreak of the European war in 1914 had brought to his factories undreamed of possibilities for the sale of airplanes.

Curtiss' only recourse was through the higher courts. He was prepared to go to the Supreme Court if necessary. He assembled a corps of experts, both legal and technical, and in 1915-1916 went to work to build up the evidence on which to base an appeal. The staff combed the history of the entire prior art, hoping to turn up something to prove that the Wrights' claims had been anticipated.

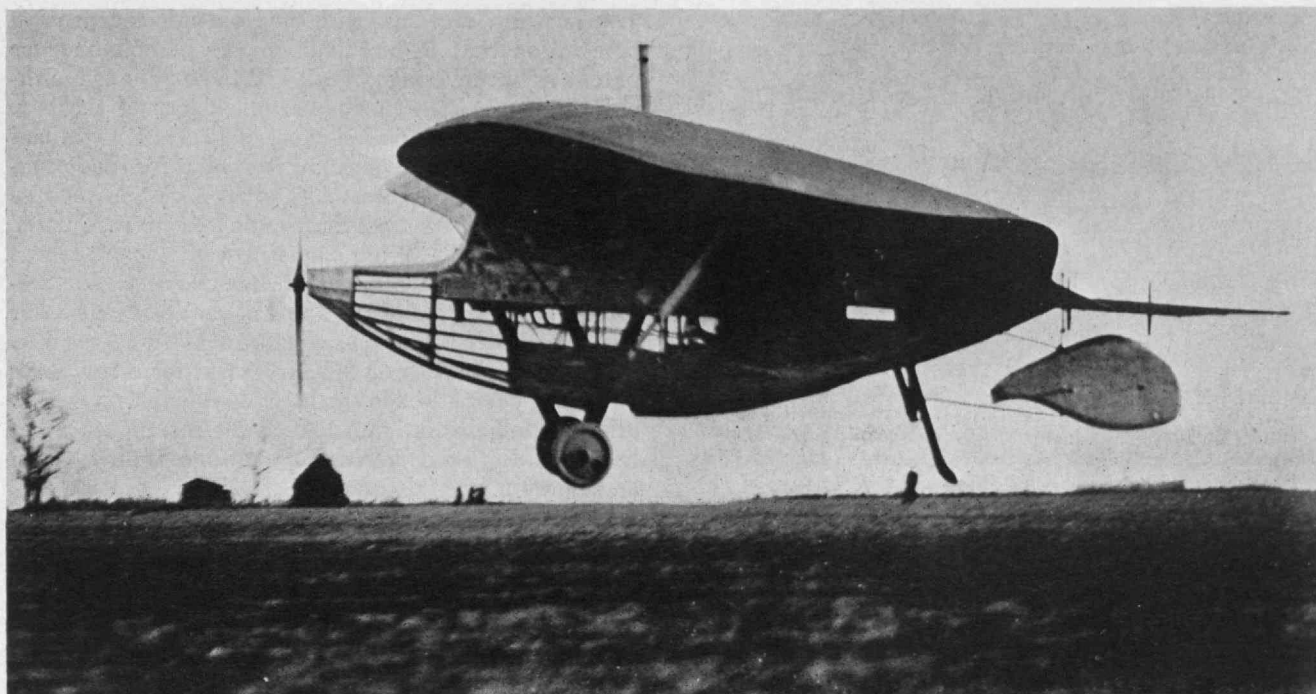
In those days, the history of aviation was none too well documented — there were few bibliographies, there was no Institute of the Aeronautical Sciences to collect and to classify aeronautical information. It was every man for himself. Even the United States patent files

AÉROPLANE À VAPEUR
DE 2000 K.

Coupe suivant l'axe.



Sectional view of Goupil's steam airplane, from *La Locomotion Aérienne*. This was the drawing partly disclosed to the Curtiss group, from which Dr. Zahm recognized the origin of the proffered documents.



Dalton's Duck in flight at Newport News, January 16, 1917, demonstrating validity of Goupil's theories. The OXX engine can be seen in the body just below the leading edge of the wing. The pilot sat in the body behind the engine.

were none too good; those of foreign governments were worse. Flying machines before 1900 had not been considered in the realm of serious invention. The early patentees had had their pet ideas filed away in the "crackpot departments." Searchers would be lucky to stumble across the things they were seeking.

Curtiss' sleuths had little luck. Clues were scarce. They discovered little tangible evidence in patent files or in libraries. None of the investigators knew quite where to start.

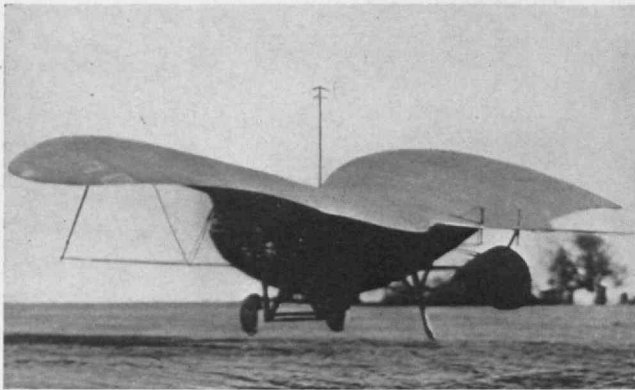
One day a mysterious visitor turned up with a story that seemed too good to believe. It was the old yarn of the yellowing document found in the forgotten trunk in the dusty attic. This was alleged to be the only extant copy of a patent for a flying machine with a three-torque control system. It would furnish exactly the kind of proof that Curtiss wanted. Only a glimpse of a crumbling sheaf of papers was allowed. It was suggested that the documents might be a bargain at \$10,000. But Curtiss was too shrewd to buy any allegedly pig-filled poke, even though the odor of bacon was strong and he was hungry. He stalled for time, demanding further proof that the thing was what he wanted. Somewhat reluctantly the ancient book was opened to display a partly concealed diagram which represented a birdlike flying machine.

That did the trick, but not what the bargainer had expected! He did not realize that on Curtiss' staff of experts was one of the outstanding aeronautical historians of the time — Albert F. Zahm, later to be chief of the division of aeronautics of the Library of Congress. That quick glimpse started a chain of thought in Dr. Zahm's mind. Carefully piecing together his recollections of his research in the early literature of flight, he soon identified the book, *La Locomotion Aérienne*, the author, A. Goupil.

Once the inventor's name was known, the rest was easy. A quick search of the United States Patent Office files brought the Goupil disclosures of 1884 to light. Curtiss saw in them the answer he was seeking. He had saved his \$10,000, but it is only fair to add that *after* the specifications and drawings had been located and secured from Washington, Curtiss paid the owner \$1,500 for the copy of the book found in the attic.

Here *was* something! Yet after all, it was only an idea on paper, not exactly the sort of thing to be depended upon to hold water in a court of law. All right! Then he would build one and prove that it would work — that should be evidence enough of practicability to establish "prior art." So Glenn Curtiss ordered his newly established Buffalo plant to build a "Chinese copy" of Goupil's machine, based on the drawings and description of *La Locomotion Aérienne*. The job was turned over to N. W. Dalton for construction. Inevitably, the machine was christened *Dalton's Duck*.

A few people are left in the Curtiss organization who clearly recall the days of the *Duck*. Al Wieland, factory manager at Buffalo, remembers the rush and bustle that went on behind a curtained-off section of the old Kale Street plant during the fall of 1916. (He was too busy turning out trainers for the United States and British air services to pay a great deal of attention.) Ed Dollinger, now superintendent at plant 2, built one of the birdlike wings. Charley Mattoon, who carries the responsibility for the selection and morale of the rapidly expanding personnel of the airplane division, was at Hammondsport, N. Y., when the *Duck* first arrived. He helped install the OXX engine and witnessed the preliminary tests and a minor crack-up. Jim LaMont, one of the earliest of airplane mechanics, later maintenance superintendent for Northwest Airlines and now manufacturing gliders for the Army in St. Paul, has vivid



In this picture of the Duck in flight, ailerons under the wings are shown. Extra bracing was added to insure adequate strength. Note similarity to the original design except for change in the landing gear.

recollection of the difficulties that were met and overcome in trucking the awkward "bird" from Buffalo to Hammondsport. (Some of the roads were too narrow, some bridges too low.) He recalls that "the morning after the test, we fellows got a football, painted it white, and put it underneath the belly; then said, 'Dalton's Duck laid an egg!'"

Whether the Hammondsport pranksters had in mind the theatrical usage of the expression is not known. In any event, the first trials were not particularly successful. The machine barely got off the ground. The field was too small. After repairs and modification (probably at Buffalo), the *Duck* was packed off to the Curtiss flying field at Newport News, Va., which provided considerably more room in which to maneuver.

There, on January 16, 1917, the final trials were held. Victor Carlstrom, one of the best of the Curtiss pilots of the time, was at the controls. John Tarbox, then patent consultant for Glenn Curtiss (now with Edward G. Budd of Philadelphia), and William Valk, still patent attorney for Curtiss-Wright, witnessed the trials. Presumably, Dalton (who is also with the Budd Company today) was a more than casually interested spectator.

Compared with the performance of even the worst of the production airplanes of 1917, the *Duck* was a miserable failure, but fly it did beyond all question, and in the skillful hands of Pilot Carlstrom it not only flew straight-away but made a controlled circular flight. It could not in any sense be called a successful flying machine. It was never "flown" more than a few feet off the ground. It lacked the essential practicability of the first Wright machine, but it did embody the three fundamentally necessary flight controls — a vertical rudder for steering, a horizontal rudder or elevator, and, what is most important, a set of rudimentary ailerons for lateral control. Goupil's conception of 1884 was sound in principle. That information was all Curtiss wanted. He had proved a point to his own satisfaction and, he anticipated, to the satisfaction of any court. The *Duck* was wheeled back into a hangar to gather the dust of years before it was finally destroyed.

After all the trouble and the expense (and, we suspect, a certain amount of fun), the *Duck* served no useful purpose. With the entry of the United States into the

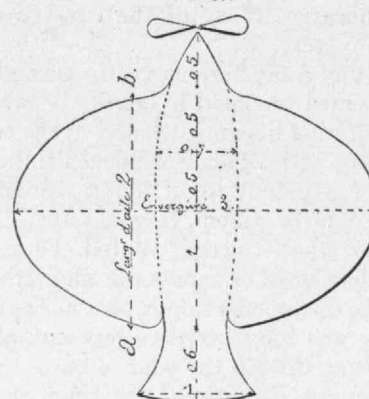
War in April, 1917, and with the tremendous expansion of aviation that followed, differences of opinion over patent rights covering aircraft had to be adjusted without recourse to the ponderous machinery of the law. The record of our aviation effort of 1917-1918 was bad enough. It would have been far worse but for the formation of the Manufacturers Aircraft Association with its patent pool and its cross-licensing agreements. Curtiss' appeal against the Wrights never got into court. It was settled by arbitration under M.A.A. auspices. The record of the building and the flying of the *Duck* hence was never introduced as evidence before a court. It was soon forgotten in the rush of events. Except for a few pages published over a decade ago in a scientific journal of relatively small circulation,* no record of its existence has been found in print. *Dalton's Duck* is now only a dim and dusty memorial to an almost forgotten man — A. Goupil.

Alexandre Goupil deserves better treatment than most aeronautical historians have accorded him. F. Alexander Magoun, '18, and Eric F. Hodgins, '22, give him a brief paragraph in *A History of Aircraft*. Charles Dollfus and Henri Bouché, who in their magnificent *Histoire de l'Aéronautique* overlooked little that added luster to the works of their compatriots, did little better by him. In my own recent summary of aviation's history, *Horizons Unlimited*, Goupil was passed over as one who "... undertook an ambitious project in 1884 — no less than the construction (Continued on page 152)

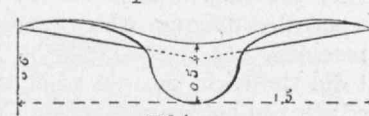
* *Journal of the Maryland Academy of Sciences*, II:137-143 (April, 1931), "Alexander Goupil, Inventor of Three-Torque Airplane Control," by A. F. Zahm.

Aéroplane a ailes fixes.

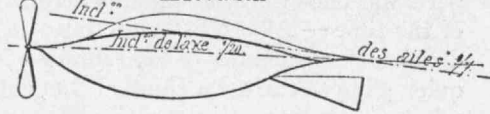
Plan.



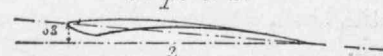
Coupe transversale



Elevation



Coupe a b.



Goupil's concept of an airplane in 1884. This drawing, that reproduced on page 130, and one other were the only ones available for the construction of the *Duck* in 1917.

The Decay of Architectural Morale

Men Must Contend Again for the Solace of Art

BY LOUIS LA BEAUME

MORALE is an ugly word, though, like many other ugly things, it is very much in evidence at the moment. We speak of national morale or group morale or individual morale as being high or low, as we tend toward courage and confidence or toward cowardice and despair. There are many signs that the morale of the architectural profession is not satisfactory. To speak bluntly, it's pretty bad.

Building for "commoditie, firmenes, and delight" has ceased, and the architect's present plight is pitiable; but that it is hopeless is still open to question. The loss of employment is hard to bear, but the loss of one's self-respect is not to be borne at all. "Who steals my purse steals trash . . . ; but he that filches from me my good name robs me of that which not enriches him and makes me poor indeed." It is shocking to discern so many symptoms of decaying morale in all the talk that goes on about architecture and the future of the architect. Even the old terms "architecture" and "architect" are being used more and more sparingly, as though they might hint at some taint or stigma.

To refer to architecture as an art is no longer considered good form in certain circles. And any chance reference to beauty makes the average architect hang his head in shame. He feels himself not only unwanted but scorned. He apologizes for his past virtues simply because he hears them vociferously described as vices. And he begins to follow a policy of appeasement — to compromise with his own inner faith. The efficiency boys seem to have got his goat and he longs, oh, how he longs, to be an engineer.

Well, engineering is, like marriage, an honorable estate, and not to be entered into lightly, but solemnly, soberly, and in the presence of God. And, as our marriage laws are based on the principle of monogamy, candidates for matrimony are, not unreasonably, required to make up their minds. Mistakes of choice frequently occur, but the anguish of temperamental incompatibility may be relieved by the courts. So likewise if any of us should decide to divorce himself from the Muse of Architecture and pay allegiance to the Muse of Engineering, the way to do so is open. Only let us have an end to this eternal-triangle stuff. Let us fish or cut bait.

Perhaps before we decide to make so important a decision, however, we might do well to consider some of the circumstances which have brought about our confused and debilitated state of mind. Until a few years ago, the architect believed in himself and in the dignity of his calling. He was respected in the community as a man apart from the jerry-builder or the structural engineer. By reason of his special qualities and, to some extent, as a result of his training, he had been able to cultivate the public appreciation of architecture as an art, differentiating it from mere

building. He had succeeded in organizing his professional concepts in such a way as to win the respect of the more intelligent elements of the community. By them he was considered not a futile visionary, a dilettante, or a long-haired aesthete, but a man of taste and sound, practical judgment. His sense of order, his skill in plan and design, were supplemented by sound knowledge of fundamental structure and by sufficient administrative ability to correlate and combine the various factors and crafts involved in each special work entrusted to him.

Under these conditions, many men rose to eminence in the architectural profession, some in limited, some in larger fields. Always the architect's personality was revealed in his accomplishments, and the work of the more talented men was easily identifiable by this personal touch even in the period when eclecticism, in the use of so-called historic styles, was rampant. If this eclecticism resulted in a certain anarchy, it at least stimulated the public imagination toward an increased respect for the goals which a truly national architecture might some day attain. Gusto, virility, and vigor abounded in much of the work of the generation just past. This exuberant practice of architecture went on all over America until the great debacle of 1929. With no indigenous architectural traditions of our own, in a terrain embracing all the topographical variety of a continent, in a climate ranging from the extremes of Greenland's icy mountains to India's coral strand, and with a population of mixed European ancestry, a considerable period of experimentation is understandable. Even so, we were developing an American idiom, especially in our commercial structures and our domestic architecture. In these fields we had achieved standards of efficiency and convenience unmatched in Europe or elsewhere. We hadn't, it is true, learned to conceive the home as a mere machine for living. We regarded it rather as a pleasant haven, the focal point of normal, decent, intelligent family life and of civilized hospitality. Its roots were in the earth, and it bore no resemblance to a ship, a tank, or a body by Fisher.

During World War I, there had been a perceptible lessening of activity. The architect was momentarily thrust aside and his place usurped by the constructor. Army cantonments, barracks, depots, and supply bases were thrown together in a great hurry, and, as emergency and temporary structures, they were perhaps justifiably considered not worthy of the architect's capabilities. Architects had a mild case of jitters, fearing continued encouragement of the builder and constructor after the War, although even in normal times the great bulk of building in this or in any other country has been accomplished without benefit of architects or architecture. This nervousness was not immediately

justifiable, for throughout the building orgy following the War, American architects were employed on a scale unprecedented in any other time or place. But flies appeared in the ointment.

In the speculative frenzy of the Twenties the promoter, the realtor, and the go-getter seemed to rule the roost. Witnessing their pre-eminence, the architect frightened himself into believing that his security depended on the mastery of their arts rather than on the cultivation of his own. Some devil kept whispering that the architect could survive only by himself becoming a realtor, a promoter, or a captain of finance. He was urged to think less and less about architecture as architecture and more and more about architecture as business.

The War had interrupted the orderly progress of architecture in Europe, and the rebuilding of the devastated areas of France contributed nothing of any inspirational value. In the Germanic countries, however, forces were being released which would tend to change the entire course of architectural progress. In Germany, in Holland, Belgium, Norway, and Sweden, a new cult of efficiency per se was being promulgated. This new cult was destined, ultimately, to spread across the seas and to influence, for better or worse, our preconceived theories of design and our hitherto cherished conceptions of the dignity of architecture. Functionalism was hailed as a new discovery, although few architectural principles or motives can be said to have been more functional than the column, the lintel, the arch, the dome, or the buttress. While we readily admit that some of these motives were becoming less and less applicable to modern necessities, the new school's utter contempt for tradition was, to say the least, disconcerting.

We began to hear of Behrens and Mendelsohn, the Bauhaus group, and a very vocal French engineer who called himself Le Corbusier. We began to see visions and hear voices—high, shrill voices. Frank Lloyd Wright came out of his silence, and soon the pack was in full cry. Proponents of a new order, in addition to their contempt for all precedent and history, exhibited a tendency to brush aside every consideration of climate, geography, and diplomatic comity in their enthusiasm for what they proudly called the "international style."

Ironically enough, those who had been loudest in their demands that we cease to look toward Europe for inspiration but, instead, express ourselves in a purely native idiom appropriate to our habits and environment, now urged us to follow the lead of the internationalists. Photographs of some of their achievements began to appear in the architectural press. They were studied with interest and awe. They undoubtedly emphasized the merit of simplicity, and we felt, with relief, that nothing more could be taken off. The reaction of neither the public nor the profession was immediately enthusiastic. As the pictures were not instantly irresistible, they were soon followed by a mass of argumentative and expository literature. Unfortunately these writings were couched in such occult terms and repeated simple and time-worn truths in such fantastic jargon that popular bewilderment increased. If old clichés were discarded, their place was filled with gibberish.

As often happens when the masses are confused, opportunists arose to capitalize the public diffidence and lack of understanding. Here at least was a new fashion, fresh from Vienna, Dessau, or Stuttgart, ready to be exploited. Customers could undoubtedly be found if they could be flattered or cajoled into believing themselves members of the vanguard. The poor boobs who had hitherto been content to ask "What style is it?" would perhaps now ask "What the *hell* is it?" Nevertheless, they could be shamed by a superior pose into ultimately accepting it. Had not the same thing happened in the field of pictorial art? Those who came to laugh (at Cubism, Dadaism, Futurism, and Abstractism) remained to pay.

It was an uphill job in the early Thirties because Americans weren't building much. We knew the old stuff to be obsolescent, but we thought we were broke. And we couldn't borrow money from Europe, though the international style had been developed in Europe with money borrowed from us. Our first experiments with the new style were tentative and sporadic—a shop front here, a speakeasy there, a cocktail lounge, a dentist's office, a gasoline station. Then our big chance came with the celebration of a Century of Progress at Chicago. The *cognoscenti* say (by the *cognoscenti* we mean, of course, the Modern masters) that we muffed it. Our American boys hadn't quite got the feel of the thing. Nor did we do much better in attempting to visualize the World of Tomorrow at Flushing. True, we enclosed a lot of space at both places, having been told that architecture is only an envelope, a carton, or shell, and that space is the meat in the coconut. So the shell game goes on—we sneak up on space and try to snare some of it in a plastic bandbox or a glass container.

Seriously we are told that it's the shape of the space that counts, not the appearance of the envelope or container. We are dogmatically assured that architects throughout the ages have been barking up the wrong tree or the wrong column. The new order attaches great importance to the use of the fifth column, long known to us as the humble Lally and formerly relegated to menial and often underground service. As a matter of fact, the Lally is probably the oldest of all the orders, and no one can deny its insinuating grace and practical performance.

Engineers have always loved the Lally. They've always loved straight lines, too, as the shortest distance between two points and the easiest to draw, with the proper mechanical instruments. They never could manage moldings or ornament of any kind. Carving pained them, detail bored them, composition or proportion flabbergasted them. Few of them had ever cared how a thing looked as long as it stood up. Flat roofs and factory sash were a cinch, and the cantilever—oh, the cantilever!—was right down their alley. Of course they joined the movement, for here was the kind of stuff they could do with one hand tied behind their backs. They cheered, they jeered. They said that architects had been thinking too much of appearances and not enough of realities, that we'd been thinking of balance and order and something called composition or something else called proportion. Worse still (and this is the most damning (*Concluded on page 144*))

THE INSTITUTE GAZETTE

PREPARED IN COLLABORATION WITH THE TECHNOLOGY NEWS SERVICE

June in January

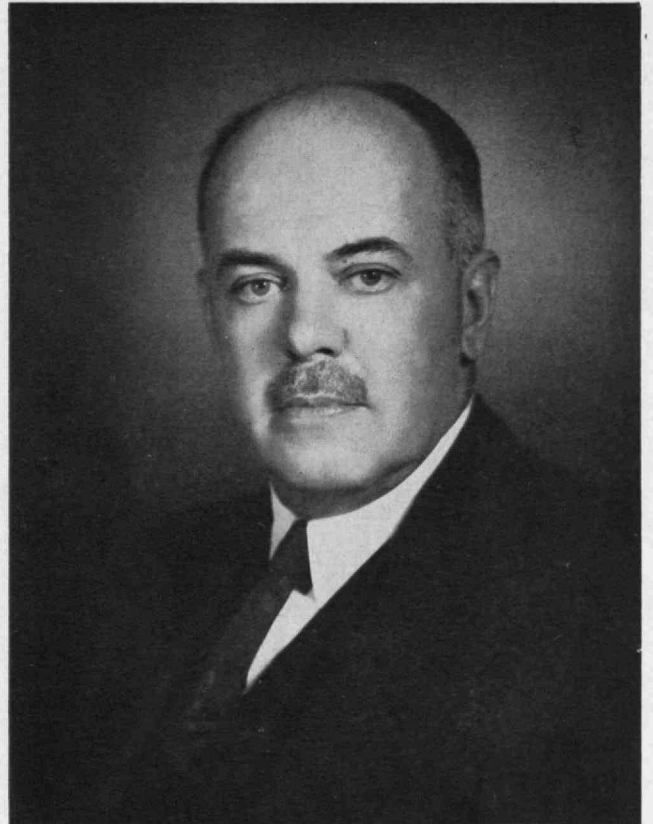
Alumni Day 1943 Promises Traditional Spirit Though Timing Is Altered; Commencement and Baccalaureate Speakers Announced

IT will be June in January for Alumni and partly June in January for the graduating class at Technology this year, with Alumni Day scheduled for Saturday, January 30; baccalaureate exercises on Sunday, January 31; and commencement for the Class of 1943 on Monday, February 1. Though wartime requirements have expedited the graduation of this year's class by a semester and have necessitated a four months' alteration of the usual program, the traditional spirit of June festivities will be maintained, midwinter or no. Plans for Alumni Day call for a shortened program, the customary symposium being omitted. Class Day exercises of the Class of 1943 will be held on Saturday afternoon as usual, and the Alumni Day Banquet will occur that evening.

Another change from ordinary procedures marks Class Day, for Technology will return then for a little while to the site of its ancient home on Boylston Street. Since the wartime load on Walker Memorial is so great as to make Morss Hall unavailable for daytime meetings, it has been decided to hold Class Day exercises in the building of the New England Mutual Life Insurance Company, which occupies the site at the corner of Clarendon and Boylston streets in Boston where once stood the Rogers and Walker buildings. The Class Day program, in which the Class of 1893 will participate with the Classes of 1918 and 1943, will be held in New England Mutual Hall, with Charles M. Spofford, '93, speaking for the 50-year Class and Kenneth Reid, '18, for the 25-year Class. The tea dance which follows will be held in a smaller hall in the same building. A short walk will take one to the Hotel Statler, where at seven in the evening the annual Stein-on-the-Table Banquet will be the big event. The speakers will be President Compton and B. Edwin Hutchinson, '09, former President of the Alumni Association.

... Commencement ...

Clarence D. Howe, '07, will make the commencement address at the 76th graduation exercises of the Institute in Symphony Hall on February 1. As Canadian Minister of munitions and supply, Mr. Howe is responsible for the vast war production program of the Dominion, which in proportion to its total population is said to be producing more materials of war than any other country in the



Delgh-Navtn

B. EDWIN HUTCHINSON, '09
Alumni Day Banquet speaker

world. Canada is building railway equipment, ships, tanks, various types of aircraft, artillery, small arms, and many other tools of war in huge quantities.

Soon after he was graduated from the Institute, Mr. Howe, who is a native of Waltham, went to Dalhousie University in Nova Scotia to teach civil engineering. His work there led to the establishment of the firm of C. D. Howe and Company, which became one of the great engineering organizations of Canada. Among its structures are most of the big grain elevators of that country.

In 1935, Mr. Howe was elected to Parliament, and Prime Minister Mackenzie King at once offered him the cabinet posts of minister of railways and canals and minister of marine, which were later to become the ministry of transport. One of Mr. Howe's first national projects was the establishment of the Trans-Canada Air Lines. After a firsthand study of the operation of commercial air lines in the United States, he began the construction of a system of transcontinental airports from Halifax to Vancouver, and when Canada entered the

war the Trans-Canada Air Lines system became a military asset of enormous significance, at the very foundation of the British Commonwealth air training program.

Mr. Howe ranges far and wide in administering Canada's war projects. He knows from firsthand information what is going on in the Dominion's industries from the Atlantic to the Pacific. Early in the war, a journey to England for conferences and personal study of war needs nearly cost him his life. He was on the liner *Western Prince* when in 1941 she was torpedoed in mid-Atlantic. Taken aboard a rescue vessel after floating for hours in a lifeboat, Mr. Howe went on with his mission, displaying the singleness of purpose which has marked his entire career. He is today a member of the supreme war production council of the United Nations.

... Baccalaureate ...

At the baccalaureate service for the Class of 1943, which will be held on Sunday afternoon, January 31, in Symphony Hall, the address will be given by Paul V. McNutt, chairman of the War Manpower Commission. The service, in which President Compton will participate, will be conducted by the Rev. Carl Heath Kopf, minister of the Mount Vernon Church of Boston.

A graduate in 1913 from Indiana University and in 1916 from Harvard Law School, Mr. McNutt later returned to Indiana as a member of the faculty and dean of the school of law. His career in public service began when he was elected governor of Indiana in 1933. In 1937 President Roosevelt appointed him United States high commissioner to the Philippine Islands, where he served until 1939. He then returned to Washington to become Federal security administrator, a post which led to his appointment as head of the War Manpower Commission. Now, as director of the nation's man power, with executive authority which gives him complete control

over the utilization for war of the skills of every man and woman in the country, he becomes one of the most powerful public figures of the war.

In November, 1917, Mr. McNutt was commissioned a captain in the Field Artillery Reserve and later was promoted to the rank of colonel. He holds honorary degrees from the University of the Philippines, the University of Maryland, American University, and Southern College, Florida. In 1928 he was elected national commander of the American Legion. His decorations include those of commander of the Order of Polonia Restituta from Poland and commander of the Legion of Honor from France. Indo-China conferred upon him the Grand Cordon, Order of Cambodia.

Model Solomons

COMPLETE in geographical and geologic detail, a topographic model of the southwestern Pacific area which has been the scene of grim American and Australian battling against the Japanese has recently been completed by a group of undergraduates working in the Institute's Hobby Shop. The relief map, cast in plaster of Paris, weighs about 350 pounds and includes the Solomon Islands, New Britain, part of New Guinea, and other islands, reproducing accurately the curvature of the earth, the mountain ranges, and the ocean stretches. It is painted in the natural colors of the area.

The territory covered in the map is about 960,000 square miles in area. To calculate the exact curvature necessary for the model to be a true representation of the region, the map makers used a 20-foot rope to represent the radius of the earth and worked from this to establish the proper curve for the model. The base was then cast in a frame, giving the group a correctly shaped surface unbroken by islands. The models of the islands themselves were separately cast, the character-



M. I. T. Photo

Geography, geology, cartography, and various other arts were combined by habitués of the M.I.T. Hobby Shop in the construction of an accurate relief map of the southwestern Pacific theater of war. Here Benjamin F. Pugh, '45, (left) kibitzes while Milton E. Pugh, '43, student shop foreman, paints an island. Charles H. Hart, 3d, '46, Richard E. Lovett, '46, and Bradley Hahn, '46, debate topography. . . .

istics of the terrain being worked out from topographic maps, and the islands being modeled individually in modeling clay, from which a mold was made. The mold was then used for the casting of the representation of the island itself. Next step was the accurate positioning of the individual islands on the sea surface — a task which involved some modified navigation in establishing the latitude and longitude of each bit of land. Painting of the finished work appropriately was the final touch.

Naturally, thoroughgoing study of the geography and the mountain formations of the islands had to be done before actual construction of the map could be undertaken. Among the undergraduates who shared in this undertaking as well as in the modeling and casting of the finished product were Milton E. Pugh, '43, of Richmond, Va., who is student foreman of the Hobby Shop; James L. Cooley, '45, of Faribault, Minn.; Harold B. Nelson, '45, of Rugby, N. D.; Benjamin F. Pugh, '45, of Richmond, Va.; Bradley Hahn, '46, of Easton, Pa.; Walter A. Mindermann, '46, of Hollis, N. Y.; and Isaay Stempnitzky, '46, of Perico, Cuba.

The map attracted widespread interest and comment when it was placed on exhibition in the Main Lobby of the Institute. As a project, it is evidence of the continued activity of the Hobby Shop even in extraordinary times, and of the maintenance of a tradition dating back to 1937, when the Hobby Shop was started as an activity by a student group under the guidance of Arthur C. Watson, chairman of the Committee on the Technology Museum. The small room in the basement of Building 2 which was its nucleus has in the years since been augmented, and the equipment has steadily increased.

Weather Men

A SPECIAL war class in meteorology, which has been studying at the Institute since last March, was graduated on November 30, when 99 aviation cadets

were awarded commissions as second lieutenants in the United States Army Air Forces. The special class included 10 ensigns of the United States Navy and 10 civilian students assigned to the course by the United States Weather Bureau and the Civil Aeronautics Administration.

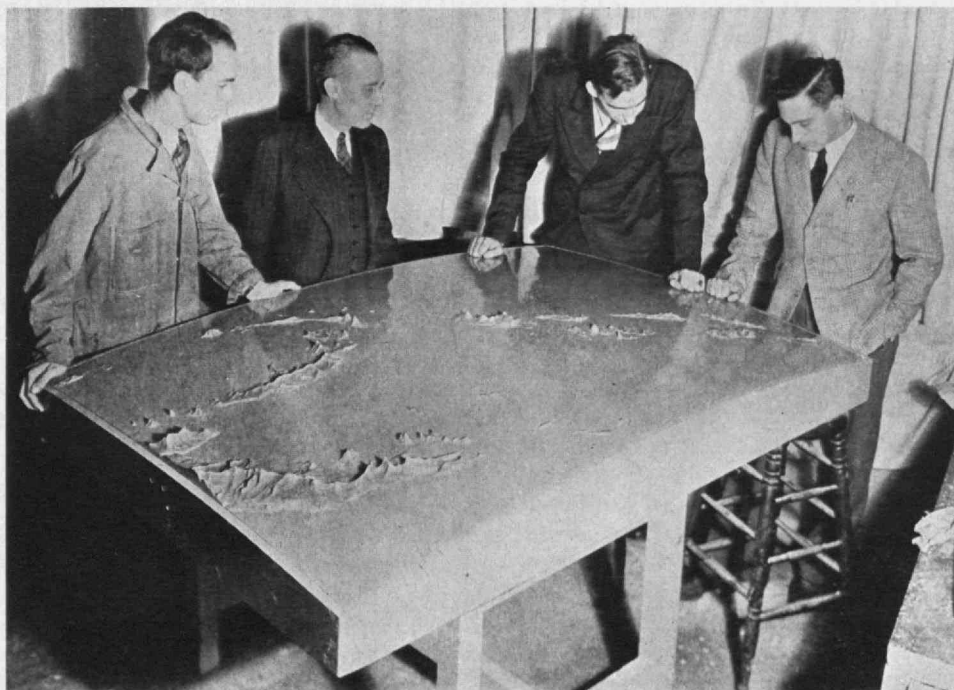
Speakers at the graduation exercises included Colonel Clyde V. Finter, commanding officer of the Boston Army Air Forces division school area; Colonel Paul L. Johnston, regional control officer of the Fourth Weather Region; and Henry G. Houghton, Jr., '27, Associate Professor of Meteorology, who was in charge of the course for this group. Another group of 500 students began work in a similar course this month.

William Robert Kales, 1870-1942

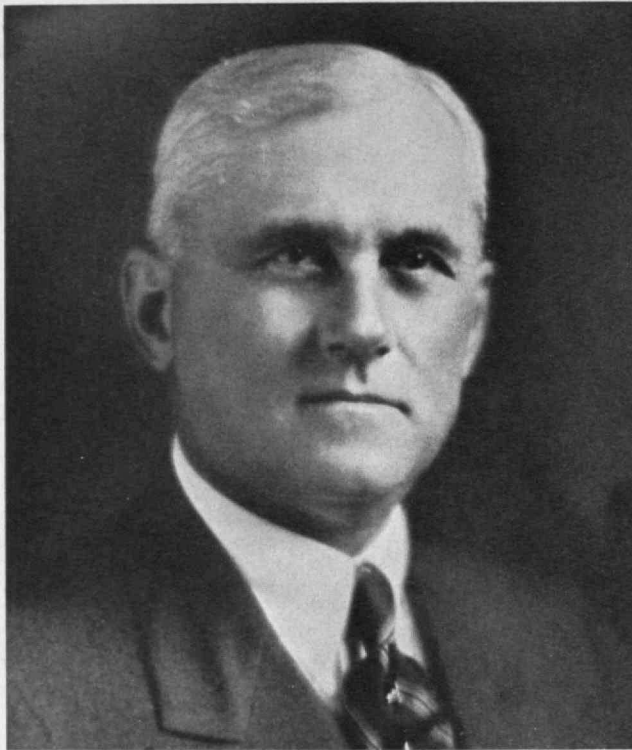
WILLIAM R. KALES, '92, President of the engineering firm of Whitehead and Kales Company, Detroit, and a life member of the Institute's Corporation, died suddenly on December 3. Born in Chicago in 1870, Mr. Kales prepared for the Institute at Phillips Exeter Academy, and in his senior year at Technology he was president of his Class, a post he also held at the time of his death.

Mr. Kales began his engineering career as a draftsman in Worcester, Mass., later going to Chicago and Milwaukee. In 1899 he formed the partnership of Whitehead and Kales Iron Works, and as blueprinter, shop manager, steel estimator, and chief engineer, became the company's one-man engineering staff. Among the firm's early contracts were six important buildings in San Francisco during the period of reconstruction after the great earthquake and fire. Later the company broadened the scope of its field of steel fabrication and erection and built lock and guard gates, movable dams, bridges, and other steel structures for the New York State Barge Canal. The company's notable works in recent years in-

... The finished map is given a last check before going on exhibition in the Main Lobby of the Institute. Inspecting the 350-pound plaster of Paris slab, complete in its representation of the mountainous islands, are Herbert L. Carpenter, Jr., '44; Arthur C. Watson, chairman of the Committee on the Technology Museum and guiding spirit of the Hobby Shop; Walter Leonard Pragnell, '46; and Bradley Hahn, '46.



M.I.T. Photo



William R. Kales, '92

D. D. Spellman

clude the fabrication and erection of steel for the great airplane motor plant of the Curtiss-Wright Corporation near Cincinnati, which covers an area of more than 30 acres under one roof. Recently Mr. Kales's company was awarded a contract to double the size of the factory. Another of the firm's projects was the huge bomber plant of the Ford Motor Company at Willow Run, Mich.

During the first World War, Mr. Kales had charge of the manufacture and erection of steel hangars for the United States Air Corps. He was commissioned a captain in the fourth air park in the first pursuit group of the Air Service and served in France with the army of occupation until September, 1919. Following the War, he became a reserve officer with the rank of lieutenant colonel in the Corps of Engineers.

Mr. Kales's activities were by no means limited to the engineering field. From 1906 to 1912 he was public lighting commissioner of the city of Detroit, and from 1904 to 1940 he served on the Detroit City Planning Commission. He was also a member of the Belle Isle Bridge Commission in 1916 and 1917. His achievements as an engineer and his contributions as a public-spirited citizen were recognized in 1936 in the award by Wayne University of an honorary degree of doctor of laws.

Mr. Kales was a member of the American Society of Mechanical Engineers, the American Society of Civil Engineers, the Engineering Society of Detroit, and the Sigma Chi Fraternity. He was long active in the Detroit Technology Association and had been a member of the Technology Club of New York as well as the old Technology Club of Boston.

In 1895 Mr. Kales married Alice Gray of Detroit. They had four children: Mrs. Neil C. McMath, Robert G. Kales, '28, Mrs. Robert G. Hartwick, and Mrs. Hugo G. Huettig, Jr.

Industrial Relations

EFFECTS of the war on every form of economic activity have created new and complex problems of industrial relations, involving intensive training for maximum production, more effective methods of supervision, and procedures for eliminating dissatisfaction, complaints, and low morale among employees. To these are added problems of distribution of man power, stabilization of wages, and collective bargaining. Industry is hard pressed to find experienced executives to cope with this acute situation. Many companies, having recently expanded their operations, are organizing personnel departments for the first time; others have been forced to enlarge such departments; still others have had to bring in new men to replace executives who have gone into the armed services or into other war work.

To provide an opportunity for relatively inexperienced personnel men to consult with more experienced executives in this field, the Industrial Relations Section of the Institute has organized a practical and condensed course in industrial relations. The object of the program is to give instruction in the principles and procedures which have been successfully applied by American industry to increase production and improve relations between employer and employee. The instructors for the course will include industrial relations executives from large industries and representatives of some of the key government agencies. Each day of the course will be devoted to a topic of outstanding current importance, which will be open for informal discussion. The course will deal with facts and practices rather than theories, and emphasis will be on practical methods of maintaining an adequate force of employees who will work in harmony for maximum production.

Limited to 30 students, most of whom are expected to be assigned to the Institute by their companies, the course will begin on January 11. The program is divided into three parts, the first ending on January 15. The second will cover the period from January 25 to 29, and the final part will open on February 8 and finish on February 12. Topics of the course will include the role of the personnel executive; government control of the labor supply; special problems of labor supply; selection and placement; training; general wage problems; job evaluation; overtime wages, incentives, and other special wage problems; union-management relations; handling complaints and grievances; labor-management co-operation, welfare and security of employees; absenteeism, hours of work, and related problems; policy formation, the nature of effective personnel administration, women in industry, and the training-within-industry program of the War Production Board.

In addition to members of the faculty of the Industrial Relations Section, instructors for the course will include Lawrence A. Appley of the Vick Chemical Company; Thomas O. Armstrong, Westinghouse Electric and Manufacturing Company; William J. Barrett, '16, Metropolitan Life Insurance Company; Ellen M. Davies, Chase Brass and Copper Company; Arthur C. Gernes, War Manpower Commission; Horace C. Houghton, shipbuilding division, Bethlehem Steel Company; Frank W. Pierce, Standard Oil Company of New Jersey; R. Blake

Russell, Merrimack Manufacturing Company; Joseph Scanlon, United Steel Workers of America; and N. F. Schlegel, General Electric Company.

Davis Rich Dewey, 1858-1942

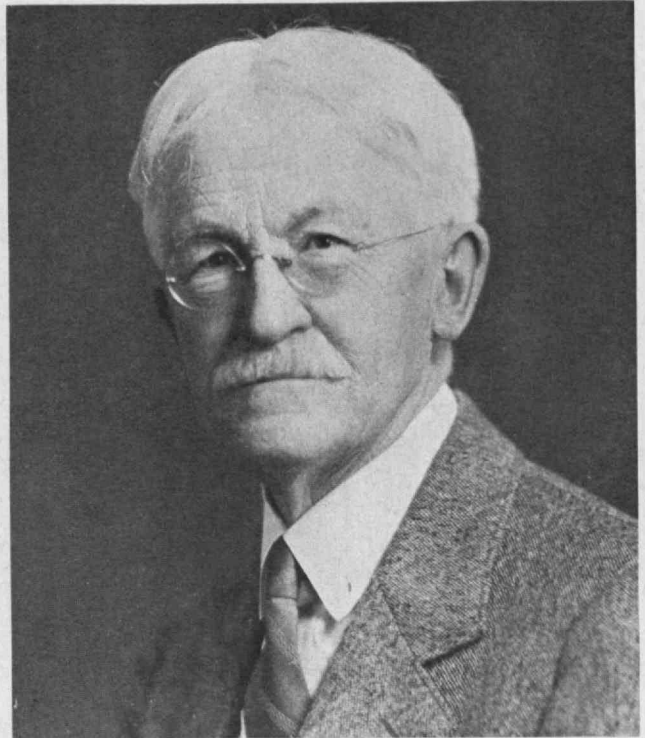
DAVIS RICH DEWEY, noted economist who had been a member of the Institute's staff for 47 years, until his retirement with the rank of professor emeritus in 1933, died at his home in Cambridge on December 13. He was the son of Archibald S. and Lucina A. Dewey of Burlington, Vt., where he was born on April 7, 1858.

Dr. Dewey was graduated from the University of Vermont in the class of 1879, and from 1881 to 1883 served as principal of the Hyde Park High School in Chicago. In 1886 he received the degree of doctor of philosophy from Johns Hopkins University and in the same year came to Technology as an instructor in history and political science. He was appointed assistant professor of economics and statistics in 1888; associate professor in 1889; professor in 1892; and head of the Department of Economics and Statistics in 1907. He was in charge of the Course in Engineering Administration from the time of its establishment in 1914 until 1930, when it became a separate Department. From 1911 to 1913 he was chairman of the Faculty. His services to education in economics and allied fields were signalized by the Institute in 1938 when a special branch library was named the Davis R. Dewey Memorial Library.

For many years an acknowledged authority on questions of industry, economics, and finance, Professor Dewey figured actively in the affairs of state and nation. In 1893 he was appointed chairman of the Massachusetts board to investigate the subject of the unemployed and a few years later aided in the work of the commission to investigate public charitable and reformatory interests of Massachusetts. Dr. Dewey served as a special expert agent on wages for the twelfth United States Census, and in 1904 was made a member of a committee on relations between employer and employee. In 1919 he acted as director of the economic section of information and education service under the United States Department of Labor. Dr. Dewey was twice appointed by President Coolidge during 1928 to membership on a special board of investigation to study wage questions on western railroads, involving thousands of railway conductors and trainmen and nearly 50 lines.

He was the author of several noteworthy books, including *Financial History of the United States*; *Employees and Wages — Special Report, 12th Census*; *National Problems*; and *Banking and Credit* (with M. J. Shugrue). In 1899 he edited Francis A. Walker's *Discussions in Economics and Statistics*. He was also managing editor of the *American Economic Review* for 30 years from its establishment in 1911.

Dr. Dewey was a member of the American Statistical Association, and its secretary from 1886 to 1906; the American Economic Association, of which he was president in 1909; and the International Statistical Institute. He was a fellow of the American Academy of Arts and Sciences and from 1909 to 1939 a trustee of the Massachusetts Agricultural College, later incorporated as Massachusetts State College.



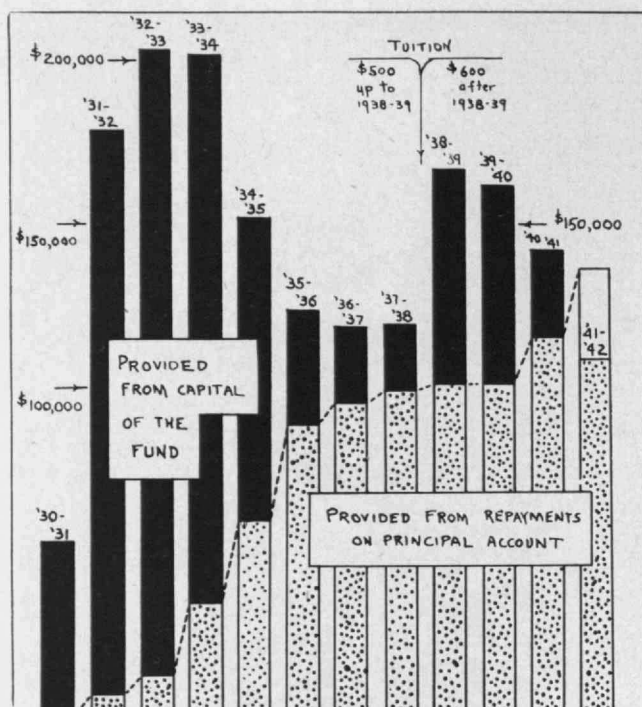
Davis R. Dewey

In 1886, Dr. Dewey was married to Mary C. Hopkins of Madison, Wis., who survives him. Their children are Colonel Bradley Dewey, '09, President of the Dewey and Almy Chemical Company, and Mrs. A. Barr Comstock. He is also survived by his brother, John Dewey, the distinguished philosopher; and by six grandchildren: Bradley Dewey, Jr., '40, Davis R. Dewey, 2d, '41, Marguerite Mellen Dewey, Ann Dewey, Ensign A. Barr Comstock, Jr., Dorothy Comstock, and a great-grandchild, Margot Dewey, daughter of Dr. and Mrs. Bradley Dewey, Jr.

Halfback

THANKSGIVING week end marked a turning point for the Technology Loan Fund in that for the first time in the Fund's history the total of notes paid off exceeded the total of notes outstanding. By December 7, the figures were \$928,615.68 paid off and \$876,300.72 outstanding. The chart on page 140 illustrates the year-by-year rising trend of repayments to the point that in fiscal 1941-1942 they exceeded the total of new loans made.

Established in 1930 through the generous contributions of 18 Alumni, Corporation members, and friends of the Institute, the Fund has already made loans to 2,499 men under a plan which has been substantially this: (1) A student "with a good academic record . . . endorsed as to character and personality" may apply to borrow up to a maximum of his full tuition requirements for three years, and for an additional year if he takes graduate as well as undergraduate work. (2) He is expected to repay his loans at the rate of \$50 every six months following graduation, but "payments may be anticipated." (3) Each loan carries interest at the rate of 2 per cent from the date made.



Borrowings from the Technology Loan Fund in each of the 12 fiscal years since its establishment in 1930, illustrating the increasing portion of each year's borrowings provided from repayments on principal account. New loans made in 1931-1932, for example, totaled \$178,672, of which amount \$5,388 was provided from repayments on loans made during 1930-1931. In 1941-1942, new loans of \$109,078 were more than provided for by \$137,489 paid off on loans made in previous years.

As already mentioned, over half the money borrowed so far has been repaid, and it is equally notable that by December 7 a total of 1,129 men, or over 45 per cent of those concerned, had completely discharged their financial indebtedness to the Fund. Moreover, many of the 1,129, and others as well, had taken advantage of the provision that "payments may be anticipated," for \$253,152.84, or over 27 per cent of the \$928,615.68 of repayments received on principal, were remitted in advance of maturity dates.

Cheering though these data be, they do not, however, yield the critical test of the Fund's operating efficiency. This is primarily to be found in two ratios — that between loans collected and loans matured, and that between interest collected and loans matured but unpaid. As to the first, \$928,615.68 is 94.2 per cent of \$986,055.24, which is the total of loans matured up to December 7. As to the second, the \$155,104.56 of interest collected up to December 7 is 2.7 times the \$57,439.56 of loans then matured but unpaid.

New Tongues for War

THE Institute's Department of Modern Languages has modified its program to meet the requirements of war by introducing new courses in conversational French, German, Spanish, and elementary Russian. These courses emphasize the practical use of vocabulary and forms useful in present-day military operations, and include reading matter dealing with Army and Navy

activities. The course in elementary Russian is designed to enable students to read the language and is expected to serve as a natural basis for continued study. The Institute's standard courses in modern languages, planned to meet in the minimum time a Technology student's needs for a scientific linguistic background, are unchanged except for the introduction of supplementary reading matter dealing with war subjects.

With the Council

MEETING for its 229th session, the Alumni Council gathered in Walker on the last Monday of November under the chairmanship of Francis A. Barrett, '24, President of the Alumni Association, to hear President Compton speak informally of Institute affairs and Samuel C. Prescott, '94, Professor Emeritus and Honorary Lecturer, discuss current advances in the dehydration of foods.

The business of the meeting comprised the presentation of various reports, including a summary of progress in the Alumni Fund presented by Henry B. Kane, '24, Fund Director. Totals as of November 30, Mr. Kane reported, showed an increase of 9 per cent in the number of contributors, of 23 per cent in the total amount contributed, and of 14 per cent in the average contribution, as compared to the same date a year previous. Extracts from letters received by the Fund Director evidenced that interest in and loyalty to the Institute are greater among no group of Alumni than those who are serving the country in the uniformed forces.

D. Walter Kendall, '24, chairman of Alumni Day 1943, summarized plans for the events of Saturday, January 30, which are reviewed elsewhere in this issue. Expectations are that the spirit of the gathering will well maintain the traditions of the past.

An intimate insight into the problems confronting educational institutions at present because of the war was given by Dr. Compton in his informal remarks. Relationships with government authorities indicate that full awareness of the situation exists, so that plans for methods to prevent undue handicapping of the colleges are to be expected.

Family Affairs

FORTY-SEVEN fathers among Alumni of the Institute are represented by their sons enrolled as members of the present freshman class. The 47 sons registered as freshmen this year compare with 45 sons and one daughter who enrolled as freshmen a year ago. The filial roster follows:

Student	Father
James A. Barnes	Carl S. Barnes, '11
Frank D. Bates	Ralph D. Bates, '14
Thomas N. Berlage, Jr.	Thomas N. Berlage, '22
George M. Berman	Eli Berman, '18
Warren O. Berry	Harold O. Berry, '22
William R. Brackett	William H. Brackett, '15
David E. Breed	Charles B. Breed, '97
Ray C. Burrus, Jr.	Ray C. Burrus, '22

(Concluded on page 144)



Mrs. Parker's cooking utensils are making it hot for the Japs

Thanks to the kind of planning that wins wars, the finest of everything goes to the fighting forces. So thousands of women whose hearts were set on outfitting their kitchens with Revere Copper-Clad Stainless Steel utensils are now treasuring the pieces they were fortunate enough to get before the war.

Treasuring them but using them—hard. For the same fine materials and manufacturing techniques that are making our military machine so tough have fortified Revere Ware utensils against years of the severe usage enforced by war.

The Revere plant where these "Kitchen Jewels" were made was

able to change over smoothly and quickly to implements of war. Like all other manufacturing plants, it could rely on the Revere Technical Advisory staff for skilled help in methods of processing the unfamiliar copper alloys of wartime.

Every ounce of copper our country produces goes directly into the essentials of warfare. Fortunately, Revere is well equipped, with modern plants, improved machines, and advanced techniques to assume a heavy responsibility in the production of vital copper alloys. And Revere research is continually probing deeper into the secrets of copper to help develop still better, stouter arms for victory.



The Revere Technical Advisory Service functions in (1) developing new and better Revere materials to meet active or anticipated demands; (2) supplying specific and detailed knowledge of the properties of engineering and construction materials; (3) continuously observing developments of science and engineering for their utilization in production methods and equipment; (4) helping industrial executives make use of data thus developed. This service is available to you, free.

REVERE COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

EXECUTIVE OFFICES: 230 PARK AVENUE, NEW YORK

ARMY... Can You Qualify?

YOUR ARMY NEEDS MEN WHO CAN MEET THESE OFFICER REQUIREMENTS:

► Applications for Army commissions by physically qualified men having the training and experience outlined below are still available. Unless otherwise noted, the minimum age is 35 years except for men who have had prior commissioned service, and the maximum age is 59 years. Between the ages of 35 and 45 years, men must be classified 3-A in Selective Service, except those who have had prior commissioned service.

Bacteriologists . . .

Experienced in medical bacteriology and serology.

familiar with organizational and procedural problems; also factory executives handling operations.

Chemists . . .

Must be competent to carry out difficult experimental work in general chemistry or physical chemistry.

Inspectors . . .

With experience in inspection technique on electrical equipment.

Comptrollers . . .

With retail store experience or public accounting experience with retail stores.

Laundrymen . . .

With practical supervisory experience in operation of large laundries, dry-cleaning firms or textile wet-processing plants.

Construction Engineers . . .

With at least five years' experience in supervision of highway or airport construction. Maximum age, 44 years.

Mechanical Engineers . . .

With experience in production relative to steel, copper, brass and other alloys.

Electrical Engineers . . .

Age limit 18 years to 46 years. Draft status immaterial. Must have degree in Electrical Engineering or Electrical Physics.

Optical Manufacturers . . .

With engineering degree and five years' experience in manufacturing of optical equipment. Maximum age, 40 years.

Former Commissioned Officers . . .

With knowledge of trigonometry. Maximum age, 44 years unless commissioned experience was recent.

Radio Engineers . . .

Graduate engineers with professional experience in electronics. Maximum age, 55 years.

Industrialists . . .

Industrial or engineering consultants with wide experience; large-scale industrial executives thoroughly

Warehousemen . . .

With experience in general warehousing.

Address inquiry to Local Army Officer Procurement Service or

PLACEMENT BUREAU

Massachusetts Institute of Technology, Cambridge, Massachusetts

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YOUR NAVY NEEDS MEN WHO CAN MEET THESE OFFICER REQUIREMENTS:

► Applications for Navy commissions by physically qualified men having the training and experience outlined below are still available. In most classifications, applicants must be American citizens for ten years.

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Age, 21-50 years. 8/20 acuity, correctable to 20/20. Only serious physical defects disqualifying. BA degree, plus BD or Doctor of Sacred Theology or 4 years in college and 3 years in theological institution. Must be fully ordained clergyman in church he represents and be in active ministry.

Deck Officers . . .

Age, 22-39 years. 15/20 acuity, correctable to 20/20. Height 5' 6". At least 2 years of college normally required, plus outstanding business success. At least one year of successful business experience or one year of graduate work in an accredited college or university.

Electrical Engineers . . .

Age, 19-50 years. 12/20 acuity, correctable to 20/20. Height 5' 6". Graduate in electrical engineering from accredited colleges and universities. Experience in all types of electrical engineering; power plant engineer's knowledge of AC, DC; dynamos and propulsion motors; fire control; and Sperry gyro compass; Diesel ordnance, radio.

Engineers . . .

Civil ■ Electrical ■ Mechanical ■ Chemical

Age, 19-50 years. 12/20 acuity, correctable to 20/20. Suitable degree from accredited college. Must have had profes-

sional experience which indicates technical ability and leadership.

Engineers . . .

Civil ■ Electrical ■ Mechanical for Construction Battalion

Age, 21-50 years. 10/20 acuity, correctable to 20/20. Height 5' 6". Many other requirements modified. Suitable college degree for rank of Ensign. Extensive construction experience in field in lieu of degree for higher ranks. Great need is for Civil Engineer with experience in field, rather than draftsmanship and design. Warrant rank for boss carpenters, electricians, and refrigeration men.

Radar Maintenance . . .

Age, 19-40 years. 10/20 acuity, correctable to 20/20. Height 5' 6". Many other requirements modified. BS degree in engineering or major in physics. Differential and integral calculus, AC theory-vector analysis. Experience in electrical or communication engineering, electronic experience, amateur radio license holders who have experimented with high frequency equipment.

Radar Officers . . .

Age, 19-45 years. 10/20 acuity, correctable to 20/20. Height 5' 6". Many other requirements modified. BS degree in physics or electricity. Extensive practical experience in field.

Address inquiry to Local Naval Officer Procurement Office or

PLACEMENT BUREAU

Massachusetts Institute of Technology, Cambridge, Massachusetts

THE INSTITUTE GAZETTE

(Concluded from page 140)

<i>Student</i>	<i>Father</i>
Frederic R. Calkins, 3d	Frederic R. Calkins, Jr., '23 (deceased)
Robert S. Cox, Jr.	Robert S. Cox, '12
Hugh A. Craigie	George W. Craigie, '10
Allen C. Crocker	Ernest C. Crocker, '14
George A. deMars	Paul A. deMars, '17
Alfred E. Edwards, Jr.	Alfred E. Edwards, '13
Abbot Fletcher	Paul W. Fletcher, '21 (deceased)
David duB. Gaillard, 2d	D. P. Gaillard, '11
Robert B. Hildebrand	Walter H. Hildebrand, '11
John S. Howkins, Jr.	John S. Howkins, '15
Earl D. Hoyt	Albert J. Hoyt, '14
John H. Hughes	Walter S. Hughes, '14
James C. Irwin, 3d	James C. Irwin, Jr., '18
Otto E. Kirchner, Jr.	Otto E. Kirchner, '24
Malcolm H. Kurth	Henry R. Kurth, '21
Thomas B. Lacy	Clive W. Lacy, '15
Milton F. Marsh	Leon F. Marsh, '14
Benjamin C. Morse, Jr.	Benjamin C. Morse, '20
Stephen W. Moulton	Robert S. Moulton, '17
Nicholas Van S. Mumford, Jr.	Nicholas Van S. Mumford, '16
Joseph C. Nowell, 3d	Joseph C. Nowell, Jr., '23
Donald L. Pearson	Harry L. Pearson, '22
Gordon H. Pettengill	Rodney G. Pettengill, '22 (deceased)
Harmon A. Poole, Jr.	Harmon A. Poole, '22
Edwin A. Reed	Charles H. Reed, '20
Eugene S. Rubin	David N. Rubin, '18
John H. Sherman	Benjamin H. Sherman, '19
Paul H. Skogstad	Herbert W. Skogstad, '19 (deceased)
Horatio Nelson Slater, Jr.	Horatio Nelson Slater, '15
Charles E. Smith, Jr.	Charles E. Smith, '00
Robert H. Stebbins	George H. Stebbins, '17
Franklyn T. Taylor	Joseph F. Taylor, '24
Robert S. Walton	Charles O. Walton, '13
George R. White, Jr.	George R. White, '18
Donald M. Whitehead	Ernest P. Whitehead, '20
Wallace L. Whittle, Jr.	Wallace L. Whittle, '22
Robert E. Wilson	Irving H. Wilson, '20
John D. Winninghoff	Wilford J. Winninghoff, '14
Paul Winsor, 3d	Paul Winsor, Jr., '22

Ten M.I.T. brothers and one M.I.T. sister further increase the family aspect of the Class of 1946. Alumni brothers are Frank W. Amadon, '33, whose successor is Roger M. Amadon; Gilbert C. Mott, '37, and Willard Mott, '41, who are succeeded by Robert R. Mott; and Teddy F. Walkowicz, '41, who is followed by Mitchell J. Walkowicz. Four seniors striking out next month have freshman as brothers. The four 1943 men are Clyde A. Booker, Jr., Ernest C. Crocker, Jr., Walter H. Hildebrand, Jr., and William R. Lacy; the brothers — Ralph W. Booker, Allen C. Crocker, Robert B. Hildebrand, and Thomas B. Lacy. Sophomore Mildred B. Edwanson is presumably looking after freshman sister Eleanor C., as Paul P. Sundback, '45, reckons with freshman brother Richard R., and William H. van Ravenswaay, '45, with freshman brother Robert C.

THE DECAY OF ARCHITECTURAL MORALE

(Concluded from page 134)

indictment of all) that we'd been thinking of beauty or majesty or dignity, when we should have been thinking only of function. This is a shattering charge. No wonder we are unnerved.

From youth to old age we have been beguiled by Beauty, and now to be told that we are only a lot of Tommy Manvilles is upsetting. Moreover, it is disconcerting to Beauty herself, who is sincerely conscious of her ability to function quite as well as Ugliness.

"What is the world coming to?" she says to herself. "Are there to be no more birds of bright plumage, no more aigrettes, no more of the subtle devices of appeal to which Nature herself resorts for the perpetuation of life, the exercise of liberty, and the pursuit of happiness? Where are all the architects," she cries, "who used to fall for me? Where are the poets who used to make ballads to my eyebrow, the minstrels whom I inspired to sweet song, the painters who delighted in loveliness?" She waits for an answer. They are gone — all gone — or at least they are in hiding. Others are goose-stepping to the sharp commands of the apostles of the new order. They have taken over the universities and the academies; they are burning the books. "No more dalliance," they bark. "Eyes forward. Don't look back. Let the dead past bury its dead."

We begin to feel the hot breath of the superman. "This is the Age of Power," he cries. "So be your age. Make all your buildings look like Powerhouses." And we begin to see universities that look like great industrial plants, museums and schools and hospitals that look like factories, houses that look like littler factories or laboratories or quarantine stations. Machines for living! Yes. But living to what end!

Let us never forget that men cannot nourish themselves forever on the dry husks of scientific efficiency, under the tyranny of cold mathematical calculation, bent before an altar of barren ideologies. Let us contend, as men once contended, for the solace of art, for the spiritual comfort of the old — yes, the old-fashioned — humanities, for the thrill of melody, for the peace that comes with beauty.

Only recently one of the most active proponents of the Modern cult raised his voice to plead for more art in housing. So you see the pangs of hunger have already begun to gnaw. They must be satisfied in time, for we shall have more art in housing, more sap, more juice, more blood and sweat and tears, and, please God, more laughter. We shall have, indeed, a new architecture, different from the old as the old styles are different from each other but, like the old, rich with all the poetry of man's experience and the promise of his possibilities.

We believe architecture to be an essential service to human society, if by architecture we mean such fabrics as satisfy the hunger of the soul, not merely the hunger of the belly or the bank account or the lust for power. We believe it the architect's responsibility to keep faith with himself, for only thus will his fellow men keep their faith in themselves or their faith in architecture.

FIDELITY SINFRA *Triple-Head* WIRE COVERING MACHINE...

for triple covering of wire

The FIDELITY Sinfra Triple-Head Wire Covering Machine—three knitting heads in series knits three cotton coverings on wire up to #6 gauge—1200 to 1500 feet per hour—speeds production—low power consumption.

Wire fed over straightening rolls through three knitting heads in series—each head knits one covering. The covered wire then passes on to a 36" capstan take-off. Separate haul-off reel stand—maximum 40" O. D., 40" traverse, 1000-lb. capacity—simplifies removal of finished product—saves floor space.

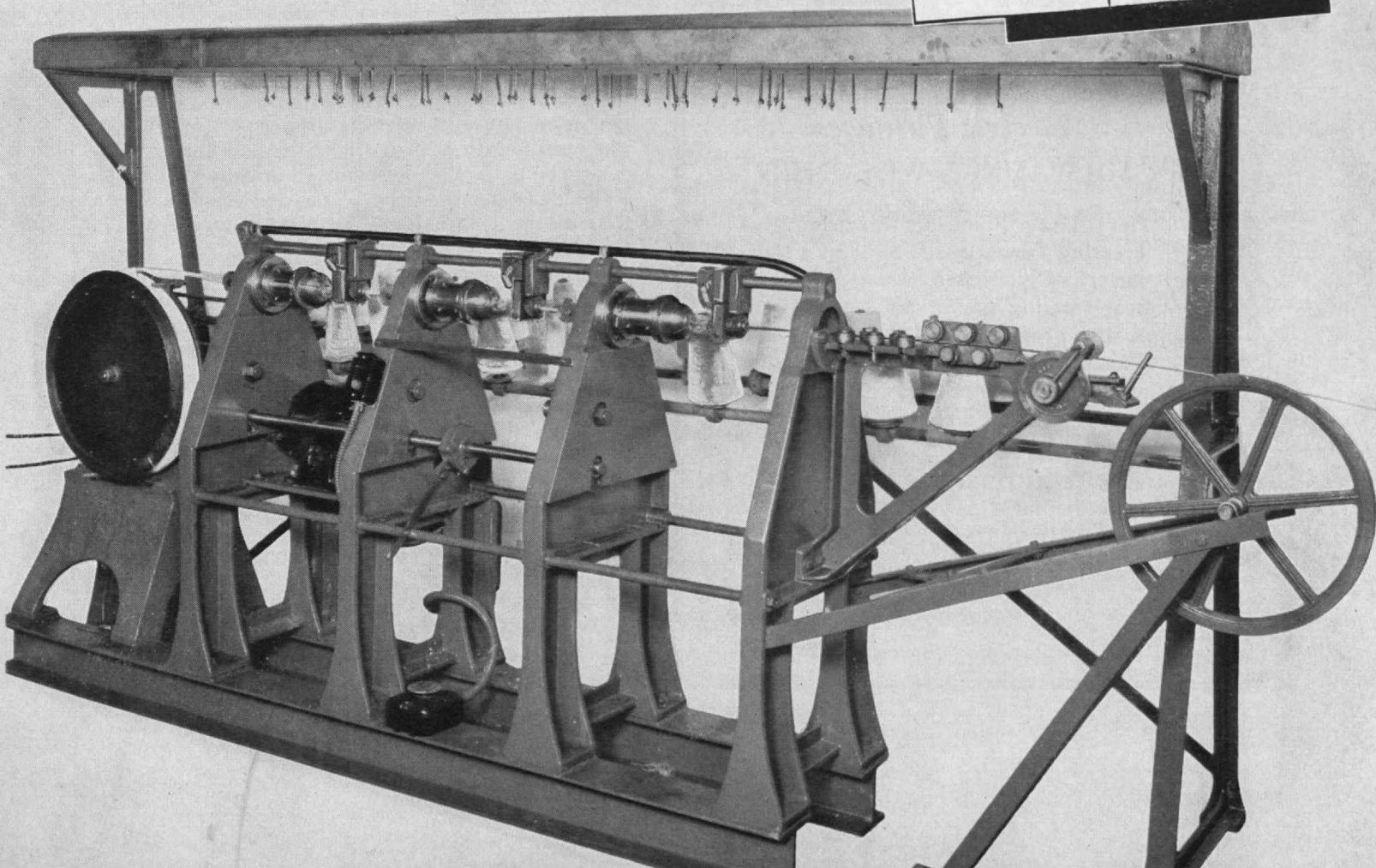
Automatic electric stop-motion for each yarn—improved knitting head and needle design eases removal and replacement—knitting direct from large cones eliminates small package winding—and quiet operation reduces operator fatigue.

Compact design, high rate of production and low power consumption make FIDELITY Sinfra Triple-Head Wire Covering Machines time- and cost-savers for you. . . . *Write for Bulletin.*

SPECIFICATIONS FIDELITY Sinfra Triple-Head Wire Covering Machine	
No. Covers Knitted	3
Rate of Production	1200'—1500' per hour
Size of Wire Covered	Up to #6 Gauge Bare Copper Wire
Power	1 H.P.
Floor Space (Knitting Unit)	12' x 4'
Haul-off Reel Capacity	Max. 1000 lb. Max. 40" O.D.— 40" Traverse
Yarn	Knit Directly from Large Cones

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| Oxygen | Mixture |
| Acetylene | Nitrous Oxide |
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ELTON E. STAPLES, '26
District Manager
205 W. Wacker Drive
Chicago, Ill.

DRIED APPLES—1943 MODEL

(Continued from page 129)

canned were on the forbidden list. Had not the manufacturers of glass containers done a very remarkable job in developing jars which could be handled on canning machinery and in finding substitutes for rubber closures, the situation would have been still more serious.

Dehydration at once moved into a very prominent place as a means of producing goods for the fighting forces. Moreover, the shortage in shipping made it essential that every advantage be taken of the great saving in weight and space which dehydration made possible. One ship could carry an amount of actual food which, in its raw form or canned, would ordinarily require eight ships.

All existing dehydration plants were soon working 24 hours a day. Some have increased their capacity, and numerous fruit-evaporating plants, canneries, and other food establishments have been transformed into dehydration plants as rapidly as they could secure the essential equipment. Many proprietors of manufacturing businesses which had been stopped as not essential to the war effort turned their thoughts in this direction in the hope that they could thus keep their organizations together and at the same time be of service to the government. Those having no knowledge of the processes of food handling and no suitable equipment were obviously not well fitted to undertake the work. Although fundamentally simple in general theory, dehydration demands a knowledge of foods and of details of rapid manipulation as well as of controlled evaporation, so that it was necessary to discourage some well-meaning men who hoped to find in this industry a means of utilizing their factories.

On the other hand, new dehydration plants have been springing up in various sections of the country. In Maine, for example, at least eight are already in operation or are projected, whereas last year but one factory was operating in a related field. No less than a half-dozen plants have been established in New York State. At least 15 states now have plants, and others are soon to be on the list. California, as might be expected, is in the lead.

The Army and Navy are contracting especially for seven types of dried vegetables — white potatoes, sweet potatoes, onions, carrots, cabbages, beets, and yellow turnips, or rutabagas, since these yield the nutritional qualities that are most useful. In addition, large quantities of dehydrated tomato juice, cranberry sauce, and apple nuggets for sauce are being purchased.

Nearly all the dehydrated food purchased by the Army is now going to forces overseas. In order to insure arrival in good condition, it is all packed in five-gallon tins, sometimes with the air replaced by inert gas to maintain vitamin content and prevent oxidative changes. Recently some very important work on compression of dried vegetables has been done by Bernard E. Proctor, '23, Associate Professor of Food Technology at M.I.T., and by others working elsewhere, which

(Continued on page 148)



To blast the enemy out of the sky . . .
 20,000 anti-aircraft guns in 1942 . . .
 35,000 anti-aircraft guns in 1943 . . .
 That is America's promise to the Victory Program—and America is going to beat that promise.

We are building a new America of huge new plants . . . enlarging facilities to insure ever-increasing production of weapons needed so urgently by our armed forces.

Behind this tremendous building program is steam. For steam serves America in war, as in peace. Steam, harnessed and brought under control with Webster Steam Heating Equipment, provides the heating comfort essential to all-out production.

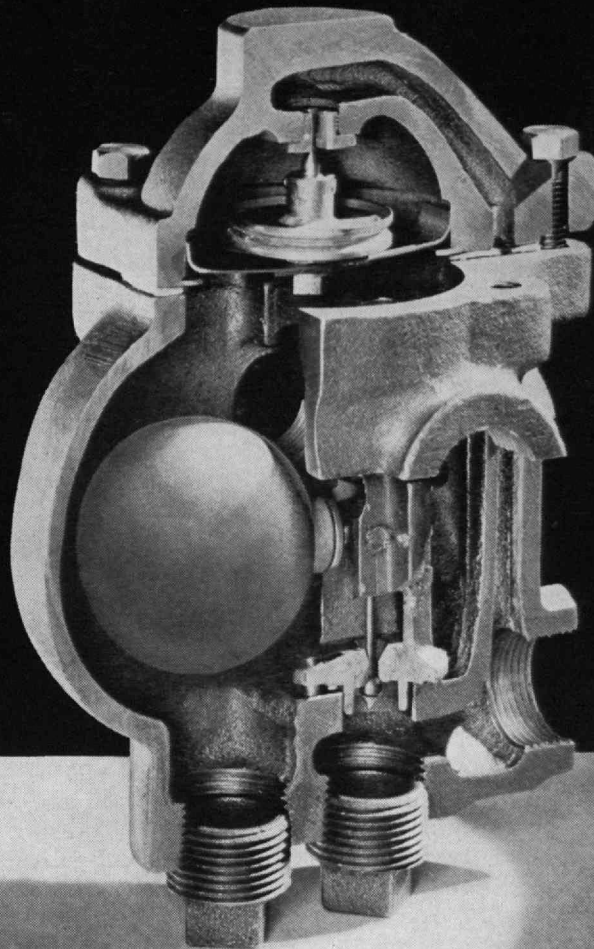
Today, we are engaged in direct war work, but manufacturing facilities are still available to supply Webster Steam Heating Equipment for plants serving the war effort.

Essential repairs for Webster Systems are available on A-10 priority, under W. P. B. Emergency Repair Order P-84. Orders should be limited to actual needs.

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Webster Combination Float and Thermostatic Traps assure unimpaired steam circulation in low pressure heating systems . . . give top-notch results from process equipment. No water build-up in the piping. No water hammer which may loosen piping and cause leaks. The float-controlled *outward opening valve* stays open as long as there is water present. Generous thermostatic by-pass closes only when the trap body is finally filled with saturated steam. Excellent for starting up cold, when large volumes of condensation are involved. Air and non-condensable gases are discharged continuously into the return. Full-sized thermostatic air by-pass is fully compensated for operation at all pressures. Webster Series "26" Traps are for pressures up to 15 lbs. per square inch. Webster Series "79" Traps are for pressures up to 150 lbs. per square inch. Operation is quiet—working parts are not subject to shock or hammer during operation. Light cover is removable for repairing trap interior. Webster Float and Thermostatic Traps are ideal for Unit Heaters, too. Consult nearest Webster Representative for full details.

Keep your present Webster Equipment in first-class condition—add years of life to your heating system—by following the practical heating advice in Webster Service Bulletin S-500-E. A copy is yours for the asking.

WARREN WEBSTER & COMPANY
 CAMDEN, N. J., EST. 1888, PIONEERS OF VACUUM STEAM HEATING

DRIED APPLES—1943 MODEL

(Continued from page 146)

promises to be of enormous advantage in still further reducing the space required in shipment and in reducing the cost.

Naturally, only high-quality raw material will give products of the desired excellence. We know more about foods and about the treatment necessary for high-grade products than was known in World War I, and every effort is being made to avoid the mistakes of those years.

ON the average, dehydration may be assumed to reduce weight of vegetables to about one-tenth that of the original. Potatoes give approximately a 6 to 1 reduction, while that for cabbages may be as great as 15 or 18 to 1. Since all foods of this type contain large quantities of water, the removal of it by rapid evaporation is the basic change produced. This is carried out in chambers or long tunnels of special design and can best be done under carefully regulated conditions of temperature, humidity, and rate of air flow, since hot air is the agency by which the moisture is carried away. The form and size of the pieces are therefore of importance, as is also the pretreatment of the vegetables before the actual drying process begins.

The fundamental principle is obviously simple — examples of it are seen in the clothing and linen hung out to dry in the sun and air every wash day, and again in the

concentration of liquids by boiling down, as in the making of sugar. Fruits, vegetables, and animal tissues, however, are more complicated mediums, made up of thousands of individual cells, each a water-containing unit in itself. The water in the interior cells of such a mass must pass by osmosis through the cell material or by capillarity between the cells until it reaches the surface, where it is taken up as water vapor by the hot current of air. Thus during dehydration, water is constantly passing into the ambient air, the relative humidity of which is being increased.

If drying at the surface takes place too rapidly in the early stages, as may occur when very hot dry air is passed at high speed over the material, there is danger with certain types of foods that a skinlike layer will be produced which may greatly impede the desirable outward passage of water from the interior, giving rise to the phenomenon known as "casehardening." A case-hardened product is unsatisfactory in quality because it will not rehydrate readily or normally. It is therefore advantageous to begin the drying process in an atmosphere with considerable relative humidity, perhaps as high as 20 or 30 per cent, in order to prevent this superficial skin effect.

In general, vegetables are cut into thin slices, shreds, or strips, or into small cubes about one-quarter inch in linear dimensions. Obviously, such pieces have, relatively, a larger surface area exposed to the stream of air passing over and between them. Although the air may

(Continued on page 150)

RATIOS from 3-1 to INFINITY in the Same Housing

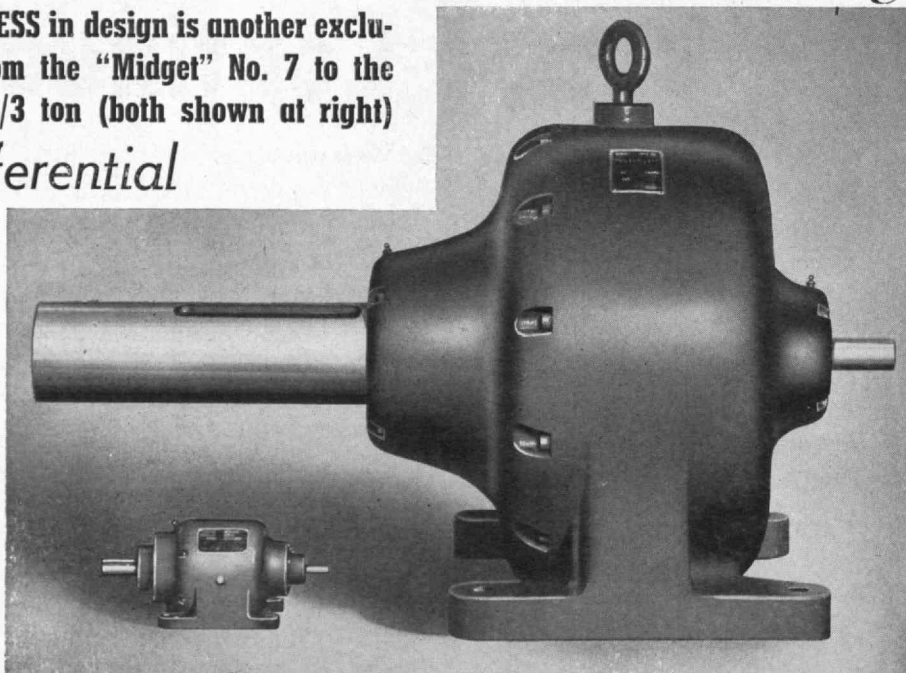
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Bigger things are coming your way, Junior

THROW back your shoulders, son; be proud! Things a lot bigger and more important than Dad's old suit are headed your way. Things like liberty, the right to speak your mind, to worship as you please. These are the most precious hand-me-downs in history—and we're fighting to *make sure* that you get them.

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It's an exciting, wonderful world you're growing up to, Junior. Because we're handing down to you the same things that have always made America strong and great—and because we're adding many new things to make it even more wonderful. So, when you're thinking about these better hand-me-downs, think of us. We're thinking of you! *General Electric Company, Schenectady, N. Y.*

☆ ☆ ☆

The volume of General Electric war production is so high and the degree of secrecy required is so great that we cannot tell you about it now. When it can be told we believe that the story of industry's developments during the war years will make one of the most fascinating chapters in the history of industrial progress.



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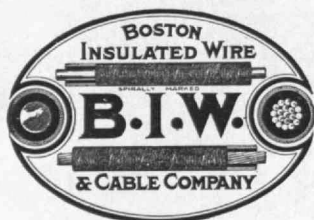
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**BOSTON INSULATED
WIRE AND CABLE COMPANY
BOSTON, MASSACHUSETTS**

DRIED APPLES—1943 MODEL

(Continued from page 148)

have a temperature as high as 200 degrees Fahrenheit or even higher, the temperature of the pieces will be much lower because of the cooling effect of the rapid evaporation. By a comparison of dry-bulb and wet-bulb thermometers or by use of recording hygrometers, and by control of air temperature at different stages of drying, the operator can regulate and control the process throughout. Usually a finishing temperature not in excess of 150 degrees is desirable. In general, the lower the effective drying temperature, the less the change in the natural characteristics of the product.

Available at present are numerous types of drying machines, chambers, and tunnels especially equipped with devices for control of the three factors of temperature, air flow, and humidity. In some types, the material to be dried is spread in relatively thin layers on trays of wire screening which in turn are stacked on trucks and thus passed into the actual drying chamber. In continuous types, endless belts are used which are loaded at one end with prepared "wet" vegetables, are mechanically driven through the machine at slow speed, and discharge the dried product at the other end of the machine. New modifications in drying equipment are constantly being developed. Probably not all are equally satisfactory, but the man who operates and supervises the process is likely to be of more importance from the standpoint of quality control than is equipment.

Proper preparation of high-grade materials, careful treatment, speedy handling, and scrupulous cleanliness are essential to secure a product of highest quality. In plants producing dried vegetables for the Army and Navy, trained inspectors supplied by the Department of Agriculture are on service to see that Federal specifications and approved methods are being followed.

For example, in the drying of potatoes, the first step is the selection of stock of good quality. The potatoes are then washed in a special type of machine, after which they are pared by an abrasive peeler or a flame peeler, are re-washed by a spray of clean water, and are put through a cutting machine which gives the desired style. Next they are submitted to a short treatment with flowing steam or are immersed in boiling water to inactivate certain naturally inherent enzymes which affect color and flavor in the *cut* vegetable. They are then sprayed again with clean cold water to remove gelatinized starch, and, finally, they are passed into the dryer, where the initial temperature is 180 to 200 degrees Fahrenheit and the relative humidity is 25 to 30 per cent. Drying to a moisture content of 6 to 7 per cent requires ordinarily four to six hours, depending on the type of chamber and the control of the air flow.

As in the handling of all "new" foods, users of dehydrated products obviously will need to learn by a certain amount of experimentation the proper method of preparation, especially the time and manner of rehydration.

The question is often asked: Will the dehydration industry increase or persist after the war? The answer cannot yet be given. If the dehydrated foods meet popular favor and the approval of the men returning from

(Concluded on page 152)



"It is a job for the engineer"

Magazines and newspapers recently have published many pictures of buildings and machines that will create the new world which will arise from the ruins of war. These pictures are interesting and comparatively quickly made by artists with talent and imagination. But, to turn these imaginative pictures into reality will take time and plenty of hard work. It is a job for the engineer. The young men of America who are schooled in the science of engineering face a promising potential. They can look for guidance to organizations which before and during the war have demonstrated that our Country leads the world in applied science. Working together, we can do a grand job for America and the world.



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Our extra quality sash cord, distinguished at a glance by our trade-mark, the colored spots. Especially well known as the most durable material for hanging windows, for which use it has been specified by architects for nearly half a century.

DRIED APPLES—1943 MODEL

(Concluded from page 150)

the war, I believe we shall have a permanent and growing dehydrated food industry. To be certain of it, the manufacturers must use every effort to make quality products. In my opinion such products would be of enormous advantage to the apartment-house dweller. Dehydration should not be merely a war baby, since we are likely not to have tin enough to go back to canning on the former scale and since we probably must feed much of Europe and China for several years to come. The outlook for these modern descendants of the old-time dried apple, therefore, is a good one.

THE DUCK

(Continued from page 132)

of a full-scale steam-driven airplane of a total weight of 1,100 pounds. He built a steam power plant to drive it and constructed the machine itself, although he never put the two together. The airplane was tested as a restrained glider, but appeared to have been insufficiently stable. It had been built in the form of a bird because Goupil believed he could thereby attain a natural stability. His tests proved him wrong." Subsequent research, particularly a reading of his *La Locomotion Aérienne*, has engendered a somewhat apologetic feeling toward him for such casual mention.

Actually, Goupil was considerably in advance of his times. Many of his aerodynamic theories published in 1884 were ahead of the concepts of Langley and the Wrights almost 20 years later. He had been a student of bird flight for many years. As a member of *La Société Française de Navigation Aérienne* he must have been in close contact with Gabriel de La Landelle, with Félix Nadar, and with Alphonse Pénaud. He read all the available books on bird flight, and he made a number of comparative studies of wing surface and weight and of the power required for flight. Although he watched with interest the Tissandier brothers' efforts to build an airship, he pinned his faith on heavier-than-air flight. He appears to have been one of the first to apply the word "aeroplane" to describe a fixed-wing flying machine.

Goupil had extraordinarily up-to-date notions of the physics of air flow around solid bodies, diagramming the transition from laminar to turbulent flow. He developed excellent streamline shapes and was fully aware of the importance of the afterbody.

He worked out mathematical theory to account for the shape of birds. He concluded that stability lay in that form which most closely resembled an inverted cone, a form which was approached in the deep-bellied bird. He believed that the airplane should have the same general relationship between wing location and body as birds have. He also observed that birds' wings had definite thickness and that in cross section they approximated an airfoil shape. He knew that both the under surface and the top surface were aerodynamically important. In this knowledge, Goupil was considerably ahead of many airplane builders of the early 1900's who bothered to cover only the bottom surface.

(Continued on page 154)

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WHERE
Printing
IS STILL A CRAFT

THE DUCK

(Continued from page 152)

He developed a usable airscrew theory after studying carefully other propulsive mechanisms, such as oars, rotating vanes, and oscillating wings. He pointed out some of the probable effects of slip-stream rotation on the lift of wings and also anticipated the desirability of feathering stationary propellers to avoid interference with air flow over wings. He made a number of simple but useful experiments on the stability of various shapes of wing.

When he came to assembling his theories into a flying machine, Goupil's ideas, as we have seen, were not too wide of the mark. A general description of them fits many a modern airplane — a gull-wing monoplane with streamline fuselage, propeller in the nose, horizontal stabilizer and vertical rudder aft, and, what is most germane to the present discussion, with opposite-acting auxiliary surfaces (ailerons) attached to the body and braced to the wings, for lateral control. The four curved skids that made the landing gear for the original design were obviously a misconception. The substitution of wheels and a tail skid on the *Duck* was one of the major external changes in construction which were introduced by Dalton.

The one thing that Goupil lacked, in common with all of his contemporaries, was a suitable power plant. He did design a steam engine and boiler for his machine. It is just as well that he did not try to install it. The outfit weighed barely under half a ton and developed 15 horsepower! The *Duck* required some 120 horsepower — from an engine that weighed not much over 200 pounds complete — to get off the ground in 1917.

Despite the fact that Goupil never flew his "aero-plane," he had some fairly practical notions as to how and where it should be flown. He wrote down a sort of operations manual for it, in which he described methods of take-off and of landing, with side remarks on weather, selection of terrain, and so on. He also described the procedure for maintaining balance in flight by the use of the ailerons, or *régulateurs*, as he called them. Among the unknowns that would have to be faced by aerial navigators of the future, he anticipated airsickness.

Goupil presented all his findings with a directness that was altogether delightful, always leaving himself an out — just in case: "I am presenting my apparatus only as a rough estimate of what I believe can be realized, without having any pretension of believing there can be none better. These are but primitive apparatus."

When it came to predicting the future of aviation, however, A. Goupil proved to be a worse prophet than he was a designer. He prefaced his book with these remarks: "The solution of this fine problem of aerial navigation seems to give no other practical result than to permit the transportation of a very small number of travelers, with the idea of making a rapid trip, be it for a scientific aim, be it to assure a scouting service for armies in the field, be it to establish a communication service when ordinary means are intercepted, or be it only for recreation."

(Concluded on page 156)

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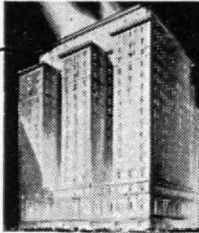
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THE DUCK

(Concluded from page 154)

It is a pity that Goupil, who died in 1909, could not have seen the flight of the *Duck* in 1917, and more to be regretted that he could not see our 50-ton air liners and freighters of today — or the 100-tonners that are just over the horizon of tomorrow.

AND THERE SHALL BE MOTORCARS

(Continued from page 126)

for all conditions of travel. Thus at cruising we shall be able to travel from 30 to 50 miles on a gallon of gas. With the adoption of roller bearings in engines as well as in the car, further savings will be made not only in gasoline but also in the amount of lubricating oil consumed.

The greatest changes that will come in new cars, however, will be in luxury. When rubber is available, the foam-rubber type of upholstery will presumably return. The back seat of the car will probably be arranged as a couch where passengers can take turns sleeping during a long tour. It is entirely possible that doors will be sliding or divided instead of on hinges, thus assuring greater safety and increased handiness in entering or leaving cars when they are parked next to high curbstones.

Air, taken into the car through ventilators, will be washed or strained free from most of its dust before it comes into the car. Plenty of fresh air will be available in a downpour without the rain's entering the car, as a rain collector should constitute part of the ventilating system.

The entire instrument panel may be eliminated, colored warning lights replacing dials. Indirect lighting which does not interfere with the driver may be standard, and some form of curtains or Venetian blinds on the windows to give privacy to the occupants will become common.

Heaters will be so arranged that they will work for some time after the engine stops and thus keep the car

(Continued on page 158)

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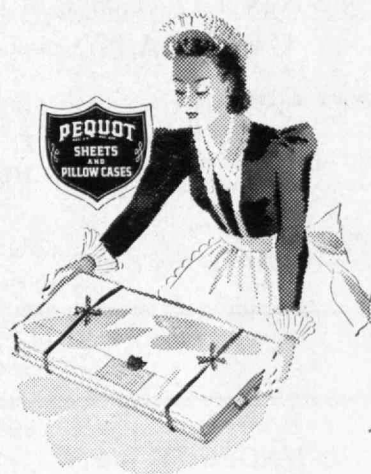
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AND THERE SHALL BE MOTORCARS

(Continued from page 156)

warm when no passenger is in it. The heater could be turned on by the clock an hour ahead of time in the morning so that the car would be warm when the owner sallied forth to his day's work.

The springing of the new cars will present a little different problem from heretofore on account of the great proportion of load to the weight of the car. Springing systems will have the advantage of being adjustable to fit their spring rate to the load that is being carried. All wheels will probably be independent, with so-called knee action extending to the drive wheels as well as the front wheels. Carrying the engine weight in the rear will eliminate the tendency of the front wheels to turn under and roll the car over when curves are taken too fast or when the front wheel runs onto a soft shoulder.

In general appearance, the cars will be quite different from those of today: They will look wider and stubbier. We shall have to get used to their shape and we will do so quickly, the minute we realize it is functionally necessary. Once we see how much more room and comfort the new designs give, the old long-hood design will seem antique overnight. Accessories will not change so radically during the war period, except perhaps tires, in which we may expect a great improvement. We are very close to the production of tires which will not bounce. When tires of this kind are available, it may be possible to make small light cars even without springs.

The probable life of the postwar car can be many times what is obtained in our present automobiles. But since the obsolescence factor will be higher because of the rapid progress being made in all branches of engineering, cars will probably not be made with a view to longer life but rather lower first cost, lower maintenance, and quicker replacement. An attempt will be made to prevent, through design itself, the bugaboo of over-supply of used cars.

At any rate, we are in for changes, for new ideas. We are going to have new production methods as well as new engineering techniques. We are going to have low cost of operation and of building as well. Cars will be designed for a minimum number of dies and tools, yet with a minimum number of man-hours necessary to assemble the job. Some of the small airplane engines can now be assembled in less time than an automobile engine requires. These trends will continue.

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THE TREND OF AFFAIRS

(Concluded from page 124)

Mishmash

WOOD finds more and more new applications as the demands of war make metals more and more precious. Manhole covers built of solid timbers which have been specially treated with a salt preservative as barrier to termites and decay are among the latest uses of wood to save metal. Banning of the ordinary iron manhole cover by the War Production Board was designed to save the 500 pounds of critical metal which normally go into each installation of a cast-iron cover, half in the lid and half in the frame. Wooden lids are constructed in either circular or hexagonal design by the laminating of short lengths of plank, and they may be built in local woodworking shops without extensive

fabricating equipment. In tests, pressure-treated wooden covers have shown ample strength and durability. ¶ Restoration of streetcar operations on a line in Brooklyn, N. Y., discontinuing a bus route started about a year previous, reverses the trend from trolley to bus which in peaceful years had led to the ripping up of many miles of the tracks over which rickety Toonervilles or sleek streamliners had run. ¶ The sapphire jewels once used for bearings in delicate indicating instruments are being satisfactorily replaced by "vee" jewels made of glass. A special type of glass is used in the manufacture of the jewels, being fused and formed in a mass-production process which will soon be on a completely automatic basis. Exacting standards must be met by the jewels: The V-shaped depression whence their name comes and the cone-shaped steel pivot which fits into it must be rigorously precise to prevent undue friction and disturbance of the accuracy of the instrument in which they are used. Each moving part of such instruments is like the parts of a watch in size and delicacy, and each requires two of the cup-shaped jewels, which are about the size of a pinhead. ¶ But one oak tree in 200 provides lumber suitable for use in the construction of boats by traditional methods. Development of the process of laminating wood, however, is expected to make the other 199 trees useful. Experimental boats 50 feet in length, with keels and frames both built of laminated wood, are now undergoing tests and observation. Keels 120 to 180 feet in length, laminated into one piece, with the stem permanently attached when desired, are foreseen as available in the not very distant future.

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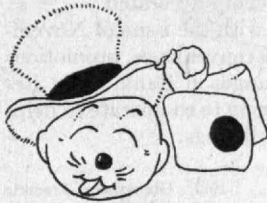
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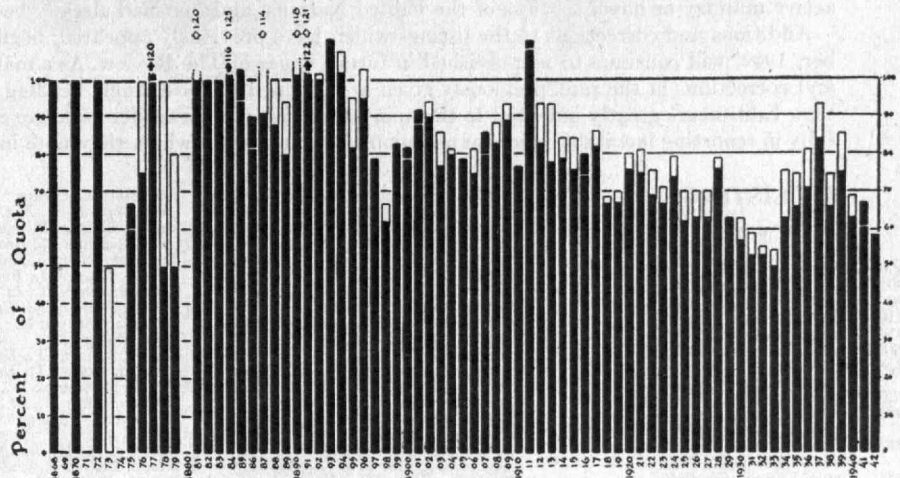
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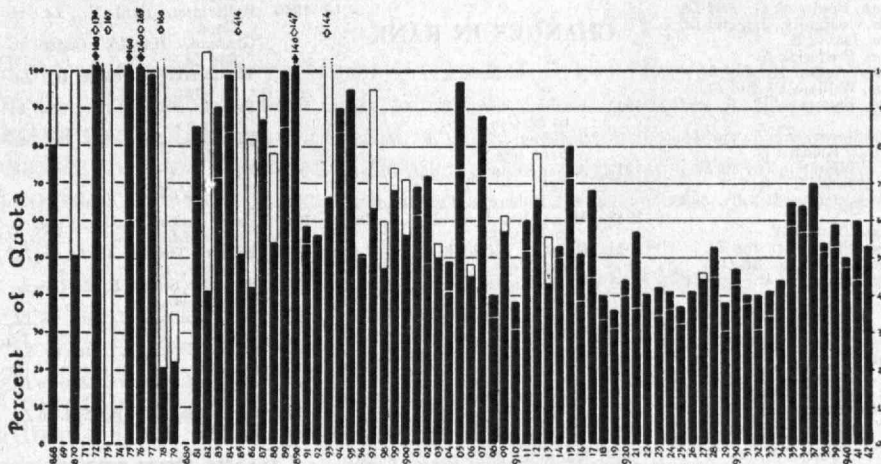


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By late fall, the third annual (1942-1943) Alumni Fund was showing encouraging increases over the second year. By that time some 7,700 Alumni had contributed—9 per cent more than last year at the same date, and within 200 of the final 1941-1942 figure of 7,967. How individual classes were shaping up is shown at the right, in per cent of quota. (Quota—one-third of living Alumni.)



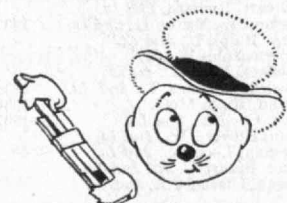
1942-43 to date										1941-42 final									
Quota	Cont.	Percent	Quota	Cont.	Percent	Quota	Cont.	Percent	Quota	Cont.	Percent	Quota	Cont.	Percent					
1868	2	2	100	1887	22	20	91	1906	131	98	75	1925	302	186	62				
1869	-	-	-	1888	24	30	88	1907	127	108	86	1926	310	196	63				
1870	1	1	100	1889	29	23	80	1908	122	101	83	1927	279	176	63				
1871	1	0	0	1890	34	35	103	1909	125	111	89	1928	274	209	76				
1872	1	1	100	1891	40	49	122	1910	132	102	77	1929	272	172	63				
1873	1	1	100	1892	49	49	100	1911	128	142	111	1930	286	163	57				
1874	1	0	0	1893	57	64	112	1912	130	108	83	1931	291	155	53				
1875	3	2	67	1894	54	56	104	1913	147	115	78	1932	335	178	53				
1876	4	3	75	1895	55	46	84	1914	142	112	79	1933	350	175	50				
1877	5	5	120	1896	59	85	95	1915	176	134	76	1934	354	224	63				
1878	5	6	120	1897	69	75	75	1916	167	133	80	1935	307	202	66				
1879	6	3	50	1898	90	56	62	1917	197	162	82	1936	283	200	71				
1880	2	0	0	1899	75	62	83	1918	187	126	67	1937	269	226	84				
1881	4	4	100	1900	84	69	82	1919	166	112	67	1938	304	201	66				
1882	5	5	100	1901	84	77	92	1920	200	152	76	1939	336	253	75				
1883	5	5	100	1902	84	77	90	1921	301	224	75	1940	375	230	61				
1884	12	14	116	1903	99	76	77	1922	423	291	69	1941	343	229	67				
1885	17	18	106	1904	114	91	80	1923	364	242	67	1942	353	205	58				
1886	19	17	90	1905	134	106	79	1924	320	237	74								



1942-43 to date				1941-42 final											
Quota	Amount	Percent		Quota	Amount	Percent		Quota	Amount	Percent		Quota	Amount	Percent	
1868	10.	8.	80	1887	390.	740.	67	1906	3025.	1766.	45	1925	3920.	1450.	37
1869				1888	630.	543.	54	1907	2925.	2586.	88	1926	4025.	1635.	41
1870	10.	5.	50	1889	600.	603.	100	1908	2800.	1116.	40	1927	3285.	1732.	44
1871	10.	0	0	1890	2875.	1635.	57	1909	2875.	1635.	57	1928	3560.	1872.	53
1872	10.	18.	180	1891	920.	537.	58	1910	2930.	1752.	60	1929	3530.	1349.	38
1873	10.	0	0	1892	1125.	670.	59	1911	2640.	1708.	65	1930	2860.	1543.	47
1874	10.	0	0	1893	1300.	855.	66	1912	2930.	1934.	66	1931	2910.	1162.	40
1875	25.	40.	160	1894	1250.	1125.	90	1913	3380.	1437.	43	1932	3350.	1326.	40
1876	45.	109.	240	1895	1270.	1204.	95	1914	3260.	1719.	53	1933	3500.	1470.	42
1877	60.	59.	98	1896	2050.	1039.	50	1915	2950.	2034.	69	1934	3500.	1547.	44
1878	25.	5.	20	1897	1600.	1001.	63	1916	3010.	1537.	51	1935	2455.	1592.	65
1879	75.	16.	22	1898	2070.	976.	47	1917	3545.	2414.	68	1936	2264.	1443.	64
1880	30.	0	0	1899	1725.	1173.	68	1918	3365.	1319.	39	1937	2072.	1442.	70
1881	50.	85.	170	1900	1940.	1094.	56	1919	3500.	1547.	44	1938	2432.	1303.	54
1882	75.	51.	41	1901	1940.	1336.	69	1920	3200.	1416.	44	1939	2688.	1595.	59
1883	65.	78.	90	1902	2050.	1461.	72	1921	4285.	2740.	57	1940	3000.	1692.	56
1884	160.	159.	99	1903	2275.	1146.	50	1922	6770.	2700.	40	1941	2740.	1656.	60
1885	270.	139.	51	1904	2650.	1299.	49	1923	5175.	2824.	55	1942	2824.	1503.	53
1886	330.	140.	42	1905	3100.	3005.	97	1924	5125.	2133.	41				

← AMOUNT

The record of amount of contributions was even better—23 per cent ahead of last year at the same date, already exceeding the 1941-1942 final figure. Few classes, as can be seen, had not bettered their last year's totals. In a year of war, the alumni body as a whole has reason to be proud of the manner in which it is evidencing its continuing loyalty to M.I.T.



TECHNOLOGY MEN IN ACTION

M.I.T. MEN AT WAR

Up to Dec. 8 over 3,200 Institute alumni, including 11 Admirals and 31 Generals, were recorded as being in the active military or naval services of the United Nations, and four had already been officially decorated.

Additions and corrections to the listings which have previously appeared, beginning with the issue of November, 1942, will continue to be published in future issues of The Review. As a matter of convenience, promotions and corrections in the rank previously given are grouped under a single heading, "Changes in Rank." The Review Editors are greatly indebted to the many alumni and other readers who are continuing to co-operate so helpfully in reporting inevitable errors of omission and commission which they note in these listings.

NEW LISTINGS

U.S.A.

- 1896 Haseltine, William E., *Col.*
 1905 Starr, F. Chas., *Col.*
 1906 Jackson, Ralph T., *Maj.*
 1910 Briggs, Leroy E., *Maj.*
 1914 Sutherland, David L., *Maj.*
 1916 Brest, Alexander, *Maj.*
 1918 Earl, John H., *Sgt.*
 Kayser, Wendell H., *Maj.*
 1920 Collier, Raymond B., *Capt.*
 1921 Butters, Harry, *Pvt.*
 Jones, Ira P., *1st Lt.*
 1922 Burrus, Ray C., *Maj.*
 Geckler, Ralph C., *Capt.*
 1923 Pierce, Edward C., *Pvt.*
 Stewart, Orr N., *Pvt.*
 1924 Bennett, Adam J., *Lt. Col.*
 Korn, Israel J., *Pvt.*
 Smith, Walter K., *Maj.*
 Walterskirchen, William M., *Capt.*
 1928 Francis, Edwin A., *Capt.*
 1929 Bray, Frederic L., *Lt.*
 Spencer, Lawrence P., *1st Lt.*
 Wells, E. Neal, *Capt.*
 Zurwelle, Rolf A., *Capt.*
 1931 Norris, Edward J., *Capt.*
 1932 Pruckner, Anton A., *2nd Lt.*
 Rhodes, Charles T.
 West, Robert W., *Pvt.*
 1933 Clark, Ellery D., *Lt.*
 Dunbar, Oliver C., *1st Lt.*
 Pettitmermet, Paul J., *Lt.*
 1934 Rosenfield, Eben, *Lt.*
 Wood, William H., *Corp.*
 1935 Dale, David W.
 Seeleman, Sam H., *2nd Lt.*
 Brown, Stanley W., *1st Lt.*
 1936 Charnley, Thomas L., *Corp.*
 Donaldson, Harry M., *2nd Lt.*
 Werblin, David A., *Lt.*
 1937 Corbett, John B., *1st Lt.*
 Nickerson, Mortimer H., *Lt.*
 Strauss, Leon, Jr., *1st Lt.*
 Walsh, Edward C., *Lt.*
 1938 Freyberg, Irwin C., *Lt.*
 Gordon, Maurice B., *Pvt.*
 Hayward, Murray, *Corp.*
 1939 Beesley, George, *Lt.*
 Deering, Roland C., *Pvt.*
 Fabacher, Lawrence J., *Lt.*
 Stanton, Paul N., *1st Lt.*
 Stewart, Herbert F., *Lt.*
 1940 Darling, Philip V., *Pvt.*
 Johnston, Richard W., *Pvt.*
 McEvoy, John P., *1st Lt.*
 Noonan, Frederick F., *1st Lt.*
 1941 Auerbach, Henry, *2nd Lt.*
 Heimer, Harry J., *2nd Lt.*
 Owen, James W., Jr., *Lt.*
 Porter, John M., *Lt.*
 1942 Argetsinger, Lyric M.
 Arnold, George L., *2nd Lt.*
 Baird, Warner G., Jr., *2nd Lt.*
 Baresel, Karl G., *2nd Lt.*
 Bennett, James E., *2nd Lt.*
 Bush, Frank J., *1st Lt.*
 Carpenter, John K., *2nd Lt.*
 Carpentier, Joseph H., *2nd Lt.*
 Carrington, Thomas R., Jr., *2nd Lt.*
 Carroll, Thomas S., *2nd Lt.*
 Cathcart, Richard, *2nd Lt.*
 Charnowitz, Milton L., *2nd Lt.*
 Clary, Ralph L., *2nd Lt.*
 Corbett, John W., Jr.
 Crockett, Allan A., *1st Lt.*
 Crowley, Thomas T., *2nd Lt.*
 Curran, Hugh McC.
 Drew, Cecil E., *2nd Lt.*
 Dunn, Edward W., *2nd Lt.*
 Freeman, Leon W., *2nd Lt.*
 Fuller, Stuart J., Jr., *2nd Lt.*
 Grogan, Clarence J., *2nd Lt.*

- Harding, Reuben M., *2nd Lt.*
 Heffernon, David F., *2nd Lt.*
 Hense, William E., Jr., *Cadet*
 Hull, Arnold R.
 Innis, John A.
 Kempster, John H.
 Kesling, Robert V., *2nd Lt.*
 Kirby, James R., *2nd Lt.*
 Kluever, Arnold F., A., *Maj.*
 Knight, Archie J., *Maj.*
 Kodis, John W.
 Kunz, Robert C.
 Kurtyka, John C., *2nd Lt.*
 Lacey, Norman F., *2nd Lt.*
 Lawler, David R.
 Lindsey, Roger H.
 Lippert, Gordon, *1st Lt.*
 Longacre, Arthur M.
 MacDougall, Gordon H., *2nd Lt.*
 Martin, George C., *1st Lt.*
 Miller, William H.
 Moncada, Valdo V. J.
 Moseley, Elwyn A., *2nd Lt.*
 Nelson, Peter K.
 Parker, Edgar O., *2nd Lt.*
 Pfeuger, James W., *2nd Lt.*
 Poole, Robert T., *2nd Lt.*
 Rados, Robert M., *2nd Lt.*
 Reed, Wallace P., *2nd Lt.*
 Rote, William A., *1st Lt.*
 Sadler, James C., *2nd Lt.*
 Saylor, Daniel M., *2nd Lt.*
 Schaeffer, William L., *2nd Lt.*
 Schloemer, Robert W., *2nd Lt.*
 Seaton, William B., *Pvt.*
 Secord, Robert N., *2nd Lt.*
 Shafer, Robert J., *2nd Lt.*
 Shane, Presson S., *2nd Lt.*
 Shuman, Frederick G., *2nd Lt.*
 Sickels, George H., Jr., *2nd Lt.*
 Sleator, David B.
 Stinson, Frederick A.
 Sweeney, Arthur H., *2nd Lt.*
 Traupe, William F., *2nd Lt.*
 Valade, Lawrence H. J., *2nd Lt.*
 Van Teylinger, Arie A., *2nd Lt.*
 Von Holt, Richard E.
 Walk, William E., Jr., *1st Lt.*
 Ware, Howard T., Jr.
 Warnock, Parks, R., Jr., *2nd Lt.*
 Whiting, Bertine A.
 Wilcox, William R., *2nd Lt.*
 Winkle, Charles B., *Lt. Col.*
 Young, James H., Jr., *2nd Lt.*

U.S.N.

- 1920 Haskell, Henry C., *Lt. Comdr.*
 1921 Moran, Bernard H., *Lt.*
 1922 Tabor, Lewis P., *Lt. Comdr.*
 1923 Jones, Roderick B., *Lt. Comdr.*
 Murray, Woodworth N., *Lt.*
 1924 Bundy, Thomas F., *Lt.*
 1925 Haliburton, Virgil F., *Lt.*
 Wickham, Joseph J., *Lt.*
 1926 Vogelgesang, Shepard, *Lt.*
 1927 Johnson, Ralph B., *Lt. Comdr.*
 1928 Estes, Norman C., *Lt.*
 Willett, James G., *Lt. Comdr.*
 1929 Fischer, George E., *Lt. Comdr.*
 Gale, Walter H., *Lt.*
 Driscoll, William W., *Lt. (j.g.)*
 1930 Rypinski, Robert B., *Lt. (j.g.)*
 Loomis, Donald S., *Lt.*
 1931 Randolph, Donald W., *Lt. Comdr.*
 Sanders, Robert, *Lt. Comdr.*
 Jackson, Foster R., *Lt.*
 1934 Sharp, John V., *Lt.*
 1936 Kinley, John C., *Ens.*
 1937 Mott, Gilbert C., *Ens.*
 Pattison, William J., *Ens.*
 Schilling, August H., *Ens.*
 Whitaker, David S., *Ens.*

- 1938 Roosevelt, Cornelius V., *Ens.*
 1939 Cook, Arthur H., *Ens.*
 1940 Hayes, Thomas B., *Ens.*
 1941 Owen, Nathan R., *Ens.*
 1942 Andrews, Richard, *Ens.*
 Aubert, Eugene J., *Ens.*
 Bellair, Frank R., *Lt. (j.g.)*
 Clarke, William N., *Ens.*
 Deutsch, Richard E., *Ens.*
 Doss, Robert L.
 Elkind, Vincent T., *Ens.*
 Fernald, Arthur T., *Ens.*
 Gander, Frederick W., *Ens.*
 Gralla, Arthur R., *Lt.*
 Henderson, George H., *Lt. (j.g.)*
 Hill, Gordon H., *Ens.*
 Klopp, Harold J., *Cadet*
 Kotsch, William J., *Ens.*
 Lee, Thomas F., *Ens.*
 Leiserson, Charles F., *Cadet*
 Meehan, Joseph P., Jr., *Ens.*
 Moore, Garrett T., *Ens.*
 Muller, John G., *Ens.*
 Mullen, Franklin G., *Ens.*
 Nelson, Arthur A., *Cadet*
 Olson, Richard W., *Ens.*
 Stempt, Charles R.
 Swenson, Kneeland, *Ens.*
 Van Nostrand, William P., *Ens.*
 Walker, Charles D., *Ens.*
 Whitmore, Quentin R., *Cadet*
 Williams, Jack R., *Ens.*

U.S.C.G.

- 1940 Walker, Phelps A., *Cadet*
 1942 Brunner, Loren E., *Lt.*

CHANGES IN RANK

U.S.A.

- 1911 Kenney, George C., *Maj. Gen. to Lt. Gen.*
 Spalding, Sidney P., *Col. to Brig. Gen.*
 1917 Aldrin, Edwin E., *Lt. Col. to Col.*
 Gay, Robert N., *Lt. Col. to Col.*
 1918 MacArdle, Donald W., *Maj. to Lt. Col.*
 1921 Quinton, Alfred B., *Lt. Col. to Brig. Gen.*
 Scott, Stanley L., *Col. to Brig. Gen.*
 1921 Smyser, Harold E., *Lt. to Col.*
 1922 Baldrige, E. Russel, *Capt. to Maj.*
 1924 Barroll, Morris K., Jr., *Lt. Col. to Col.*
 Campbell, Alan L., *Maj. to Col.*
 Doolittle, James H., *Brig. Gen. to Maj. Gen.*
 Hannum, Reiff H., *Lt. Col. to Col.*
 Lynn, Edison A., *Maj. to Col.*
 Marsh, Raymond, *Maj. to Col.*
 Maynard, Edwin B., *Lt. Col. to Col.*
 Moore, Donald E., *Capt. to Maj.*
 Reed, Frank F., *Maj. to Col.*
 Reinhardt, George C., *Capt. to Maj.*
 Smith, Edward W., *Maj. to Col.*
 Smith, Edwin A., *Lt. Col. to Col.*
 Wilson, Vennard, *Maj. to Lt. Col.*
 1925 Vaughan, Donald G., *Maj. to Lt. Col.*
 1926 Fuller, Arthur C., *Lt. to Capt.*

- 1927 Glantzberg, Frederic E., *Maj. to Col.*
 1928 Hauseman, David N., *Maj. to Col.*
 1929 Rush, Hugo P., *Maj. to Col.*
 1931 Carr, Harold H., *Maj. to Col.*
 Holler, Walker W., *Maj. to Lt. Col.*
 1932 Spiegel, Charles A., *Lt. to Capt.*
 1933 Billingsley, John D., *Lt. to Lt. Col.*
 Van Sycle, David L., *Maj. to Lt. Col.*
 Cook, Carleton J., *Capt. to Maj.*
 1934 Kron, E. Philip, *Lt. to Capt.*
 Person, Leland S., *Pvt. to 2nd Lt.*
 Seligman, Joseph L., Jr., *Lt. to Capt.*
 Way, Gordon L., *Lt. to Capt.*
 1935 Garton, George G., *Maj. to Lt. Col.*
 Challender, Stuart A., *Lt. to Capt.*
 Root, Darrell A., *Lt. to Capt.*
 Shaw, Richard L., *Lt. to Capt.*
 1936 Davis, Elmer W. L., *Lt. to Capt.*
 Donnelly, George E., *Pvt. to 2nd Lt.*
 Grossman, Eli A., *Pvt. to Sgt.*
 1937 Burns, John R., *Maj. to Col.*
 Matthews, Norman A., *Lt. to Capt.*
 Sloninger, Glen R., *Lt. to Maj.*
 Weyher, Theodore A., *Lt. Col. to Col.*
 1938 Martin, Edward P., *Lt. to Capt.*
 1940 Bollerman, Paul V., *Lt. to Capt.*
 Graham, Harold, *Cadet to 2nd Lt.*
 Weinbrenner, George R., *Lt. to Capt.*
 1941 Duncan, John C., Jr., *Pvt. to Corp.*
 Richards, John C., *Pvt. to Cadet*

U.S.N.

- 1917 Pace, Ernest M., Jr., *Capt. to Rear Adm.*
 1925 Killian, Thomas J., *Lt. to Lt. Comdr.*
 1932 Spangler, Selden B., *Lt. Comdr. to Comdr.*
 1936 Tier, William J., *Ens. to Lt. (j.g.)*
 1938 Lamb, Fred L., *Ens. to Lt. (j.g.)*
 1940 Halstead, George C., *Ens. to Lt. (j.g.)*
 1942 Jorgensen, John B., *Ens. to Lt. (j.g.)*

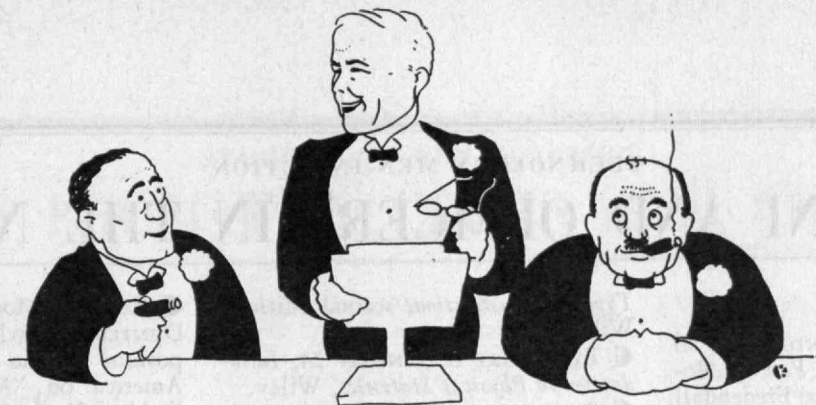
RANK NOT PREVIOUSLY PUBLISHED

- 1939 MacKinnon, Charles E., *Lt. U.S.A.*

CASUALTIES

- 1907 *VanKeuren, Henry P., *Capt. U.S.A.*
 1917 †Conaty, Francis S., *Lt. Col. U.S.A.*
 1933 †Carle, E. Richards, *Capt. U.S.A.*
 1934 *Hubbard, Harry E., *Lt. Comdr., U.S.N.*
 1942 *Jones, Cutler, *Ens. U.S.N.*
 *Dzendolet, Arthur, *Lt. U.S.A.*

* Killed in Action. * Died in Service. † Reported Captured.



ENJOY THE
GOOD FELLOWSHIP
OF THE
Stein-on-the-Table
ALUMNI BANQUET

HOTEL STATLER, BOSTON

SATURDAY, JANUARY 30, 1943

Technology's annual Alumni Day program will be held on January 30, so that the Class of 1943, which will be graduated on February 1, may join in the festivities. Alumni Day 1943 consists of two events: Class Day and the "good time was had by all" Alumni Banquet.

Class Day Program

This year's program returns to the site of the "Tech on Boylston Street" and will be held at 2:30 P.M. in the auditorium of the New England Mutual Life Insurance Building . . . Sharing the honors with the Class of 1943 will be the twenty-fifth (1918) and the fiftieth (1893) reunioning classes. At this traditional ceremony, members of 1943 officially become Alumni. Included in this program will be the presentation to Technology of a portrait of Horace S. Ford, which is the gift of the Class of 1892.

"Good Fellowship" Banquet

At 7:00 P.M., Technology Alumni once again will have the yearly opportunity to enjoy the spirit of comradeship which always prevails "when good fellows get together" . . . President Compton will deliver his annual message on the developments at Technology since the last Alumni Day . . . B. Edwin Hutchinson, '09, last year's popular Alumni President and Toastmaster at the annual banquet, will play a "return engagement" this time, as one of the featured speakers of the evening together with President Compton. Francis A. Barrett, '24, President of the Association, will be the Toastmaster.

The cost of the banquet, including both Federal and State taxes, is \$4.00. Seating will be by classes. Make checks payable to "Alumni Association of the M.I.T." and mail to Room 3-219, M.I.T., Cambridge, Mass. Applications for tickets will be mailed to Alumni after January 1, 1943.

♪♪ *Come Back To Tech* ♪♪

ALUMNI DAY • SATURDAY • JANUARY 30, 1943

ALUMNI AND OFFICERS IN THE NEWS

Uncensored Tribute

¶ To LLOYD R. FREDENDALL '07, in the Washington, D.C., *Post* of November 15. Major General Fredendall commanded the center landing force at Oran in the invasion of North Africa by the American Expeditionary Force.

¶ To HENRY SCHUMANN-HEINK '10, in the San Francisco *News* of October 30, for his work in the subcontracting department of the Marinship outfitting division.

¶ To JAMES H. DOOLITTLE '24, in the New York *Journal-American* of November 4. Major General Doolittle commanded the American air forces in the North African operations.

¶ To NEMBARD N. CULIN '34, in the *Architectural Forum* for November. Mr. Culin designed for the production of war material a huge plant, which is described in the *Forum* as "the last word in industrial building design and construction."

¶ To BURT C. McNALL '42, in the Buffalo, N.Y., *News* of November 7. Sergeant McNall, who is a pilot in the Royal Canadian Air Force, sank a large Nazi transport at Tobruk.

Scribed

¶ By JOHN M. HOWELLS '90, *The Architectural Heritage of the Merrimack*, Architectural Book Publishing Company.

¶ By EDWIN SUTERMEISTER '99, *Chemistry of Pulp and Paper Making*, third edition, Wiley.

¶ By DOUGLAS C. McMURTRIE '10, *Gutenberg Documents; With Translations*, Oxford.

¶ By JOHN L. BRAY '12, *Ferrous Production Metallurgy*, Wiley.

¶ By ANDREW W. CARMICHAEL '13, *Practical Ship Production*, second edition, McGraw-Hill.

¶ By JAMES A. TOBEY '15, "Whole Wheat and Enriched Breads," *Journal of the American Dietetic Association*, October.

¶ By HERBERT J. GILKEY '16, with Glenn Murphy and E. O. Bergman, *Materials Testing; Theory, Practice and Significance of Physical Tests on Engineering Materials*, McGraw-Hill.

¶ By EDGAR E. HUME '21, editor, *General Washington's Correspondence Concerning the Society of the Cincinnati*, Johns Hopkins Press.

¶ By WHITNEY C. HUNTINGTON '23, *Building Construction; Materials and*

Types of Construction, second edition, Wiley.

¶ By ROBERT B. LINDSAY '24, *Introduction to Physical Statistics*, Wiley.

¶ By CHARLES A. THOMAS '24, *Anhydrous Aluminum Chloride in Organic Chemistry*, Reinhold.

¶ By JACOB MILLMAN '32 and Samuel Seely, *Electronics*, McGraw-Hill.

Honor on the Home Front

¶ To J. BURLEIGH CHENEY '11, for his appointment as manager of the salvage department of the New England regional office of the War Production Board.

¶ To ERNEST M. PACE, JR., '17, a rear admiral, and THEODORE P. WRIGHT '18, for their appointment by the War Production Board to a three-man aircraft production control committee under Charles E. Wilson.

¶ To LUCIUS T. HILL '17, for being chosen assistant executive manager of the victory fund committee for the First Federal Reserve District.

¶ To SUMNER K. WILEY '18, for his reappointment as regional director for the Federal Public Housing Administration in New England.

¶ To EDWARD R. SCHWARZ '23, for being selected as a member of a special textile committee to serve as a clearinghouse between the Quartermaster Corps and the synthetic fiber industry on technical matters relating to the use of man-made fibers and textiles in Army equipment.

Technology Oracles

¶ EVERETT O. EASTWOOD '02, who gave an illustrated talk on the development of the airplane and its function in war, before a meeting of the Engineering Professions Club and the Florida chapter of the American Society of Civil Engineers in Jacksonville, Fla., on November 3. Professor Eastwood, who is the president of the American Society of Heating and Ventilating Engineers, also gave a talk about planes at a meeting of the Louisiana Engineering Society, held in New Orleans on November 9.

¶ KENNETH C. REYNOLDS '25, who spoke on "Some Hydraulic Problems Near Los Angeles" before a meeting of the hydraulics section of the Boston Society of Civil Engineers on November 4.

¶ PARRY H. MOON '27 and S. QUIMBY DUNTLEY '33, who addressed a symposium of the Optical Society of America on "Mathematics in the Field of Optics," at a meeting of the American Mathematical Society in New York on October 30.

DEATHS

* Mentioned in class notes.

¶ HENRY D. HIBBARD '77, October 17.*

¶ ROBERT COIT '86, August 11.

¶ FRANK L. SOLOMON '87, July 24.*

¶ JOHN BLODGETT '88, September 26.

¶ WILLIAM A. CONANT '88, August 13.*

¶ FRANK E. SANBORN '89, November 13.

¶ JAMES A. CARNEY '90, July 16.

¶ EDWARD A. NORTHEY '90, November 17.

¶ WILLIAM H. ADAMS '91, October 26.*

¶ WILLIAM R. KALES '92, December 3.* (See Institute Gazette.)

¶ WILLIAM E. NORTHEY '93, November 8.*

¶ CLYDE N. FRIZ '94, November 22.

¶ AZEL AMES '95, November 23.*

¶ CHARLES E. BIRGE '95, November 22.

¶ JOSEPH H. KNIGHT '96, November 3.*

¶ JOHN W. FITZGERALD '97, November 2.*

¶ CHARLES N. HASKINS '97, November 14.*

¶ WILLIAM E. PARKER '99, September 30.

¶ SAMUEL B. TUELL '03, July 3.*

¶ WILLIAM S. GOUINLOCK '05, October 11.*

¶ FRANK W. FRIEND '07, October 17.*

¶ J. FRED MURRAY '08, August 6.*

¶ HERBERT H. SUTTON '09, August 20.*

¶ ALFRED V. GUILLOU '12, December 21, 1940.

¶ ALFRED F. KENRICK '12, May 29.*

¶ CARL H. MORRILL '12, October 13.*

¶ GUY K. CALHOUN '13, February 21.*

¶ ERNEST B. BIZZOZERO '24, November 28.

¶ DAN D. CLARK '40, September 5.*

¶ GEORGE R. SMITH '40, July 31.*

¶ DAVIS R. DEWEY, emeritus, December 13. (See Institute Gazette.)

NEWS FROM THE CLUBS AND CLASSES

CLUB NOTES

National Metal Congress

Bradley Stoughton '96, President, welcomed the members of the American Society for Metals and co-operating societies, including many Technology Alumni, at the annual convention held in Cleveland in October. John Chipman, Professor of Metallurgy at M.I.T., delivered the Campbell Memorial Lecture, one of the greatest honors in metallurgy, given annually to the man who has most distinguished himself in some field of the science. Marcus A. Grossmann '11 is vice-president of the Society for Metals.

Taking active part in the convention were the following: Alfred V. de Forest '11, who was chairman of the meeting on "Interpretation of Magnaflux and Other Surface Inspection Tests"; Albert W. Demmler '20, who spoke on "What Types of Steel Can Be Benefited"; Axel G. H. Andersen '21, with W. A. Kingsbury, "Phase Diagram of the Copper-Iron Silicon System from 50% to 100% Copper"; John W. W. Sullivan '23, "Latitude of Inspection, in Terms of Meeting Both the Intent of the Specifications and the Production Schedule"; Richard H. Schmidt '32, who summarized the meeting on "Practical Programs for Segregation, Collection and Reclamation of Metal Scrap"; Morris Cohen '33, with Otto Zmeskal, "The Tempering of Two High-Carbon High-Chromium Steels" and, with Paul Gordon '40, "The Kinetics of Austenite Decomposition in High Speed Steel"; Richard F. Miller '34, with G. V. Smith and G. L. Kehl, "Influence of Strain Rate on Strength and Type of Failure of Carbon-Molybdenum Steel at 850, 1000 and 1100 Degrees Fahr."; Edward L. Bartholomew, Jr., '37, "Stress-Strain Measurements in the Drawing of Cylindrical Cups"; Greer Ellis '38, "Use of Fluorescent Liquids to Locate Surface Defects"; J. Lester Klein '41, with Peter Payson, "The Hardening of Tool Steels"; Nicholas J. Grant '42, with John Chipman, staff, "The Induction Furnace as a High Temperature Calorimeter and the Heat of Solution of Silicon in Liquid Iron"; William E. Wickenden, former staff, who was chairman of the session on "Recruiting, Training and Handling Inspectors of Metallurgical Material"; and John Wulff, staff, who spoke on "Manufacture of Iron Powder of High Quality."

The following were present at the alumni luncheon held on October 14 in connection with the National Metal Congress, the American Society for Metals, the American Institute of Mining and Metallurgical Engineers, and other organizations: Harry B. Pulsifer '03; Allen A. Gould '10, President of the M.I.T.

Association of Cleveland; Charles B. Sawyer '17; Haig N. Solakian '17; Illes E. Waechter '17; John T. Norton '18; Victor O. Homerberg '21; Van Dorn C. Smith '22; Roscoe H. Smith '23; John L. Tatman '24; Edith P. Meyer '25; Daniel L. Edlund '28; Harold L. Geiger '28; William M. Hall '28; Laurance F. Van Mater '28; George N. Wedlake '28; George R. Long '29; William J. Harris '30; Allen G. Shepherd, Jr., '30; Fred L. Coonan '31; Howard B. Huntress '31; Albert L. Kaye '31; Daniel P. Dyer, Jr., '32; Oscar T. Marzke '32; F. Rolf Morral '32; Bruno H. Werra '32; Lewis M. Burrows '33; Arthur A. Jackman '33; Emerson S. Norris '33; Eugene S. Clarke '34; Victor G. Mooradian '34; Albert M. Talbot '34; Carl H. Muehle-meyer '37; Leo P. Tarasov '37; Robert D. Williams '37; Bruce S. Old '38; Roy D. Haworth, Jr., '39; Morris E. Nicholson, Jr., '39; Carl W. Schwenzfeier '41; Robert T. Howard, Jr., '42; Edward M. Kaulbach '42; Dara P. Antia '43; Nicholas J. Grant '43; John Chipman and John Wulff, staff.

Technology Club of Central Pennsylvania

The fall meeting of the Club was held at the William Penn Hotel in Harrisburg on November 2. While the attendance was noticeably light, we were particularly fortunate in having Frank Chesterman '05, Vice-president of the Bell Telephone Company of Pennsylvania, as our after-dinner guest speaker. Our President, Frank A. Robbins, Jr., '02, introduced Mr. Chesterman, who is a life member of the M.I.T. Corporation. It was extremely interesting to hear of the large-scale activities under way at the Institute. Attention was called to the scope of work, as covered by President Compton's report. A number of the latest views of the new buildings under construction at Cambridge were thrown on the screen.

In addition to his enlightening talk on Institute affairs, Mr. Chesterman showed us several reels of movies taken in connection with the remarkable recovery of the submarine *Squalus*. The engineering problems and difficulties involved were clearly portrayed, and the film intensified our admiration of the Navy in accomplishing such a task. We were all stimulated to resume our own engineering problems with a new vigor.

Those present were as follows: Edgar A. Weimer '98, Frank A. Robbins, Jr., '02, Percy E. Tillson '06, Ralph E. Irwin '09, Gardiner C. Wilson '15, Eldor J. Mink '22, Breese J. Stevens '23, John B. Tucker '31, Robert K. Breese '46, and guests, J. A. Fitzpatrick, J. W. Gillen, Raymond Kennedy, and R. A. Preble. — GARDINER C. WILSON '15, *Secretary*, Armstrong Cork Company, Engineering Department, Lancaster, Pa.

New Haven County Technology Club

The first meeting of the season was held on November 9 at Ceriani's Café Mellone. A copy of the membership list had been sent to each member so that transportation facilities could be pooled. As a result, there were 30 members and guests present, a good showing under the circumstances. It is planned to hold only three or four meetings this season.

After dinner, in the absence of our retiring President, Edwin L. Rose '21, President-elect Charles A. Williams '21 opened the meeting. After the reports of the officers, action was taken on amendments to the constitution and bylaws. Notice had been given about these amendments, which make minor changes in procedure. Hereafter, the annual meeting will be held in the spring instead of in October. The Chair appointed A. Royal Wood '21 and Floyd W. Buck '29 to audit the books and records of the Club. A committee is to be appointed to report at a later meeting on the effect of war conditions upon Alumni in this area. The Club voted to donate \$10 to the Alumni Athletic Fund.

After the business meeting, Robert F. Lybeck of the Colonial Beacon Oil Company addressed us on the subject "Synthetic Rubber." He presented a colored motion picture which illustrated and explained the chemical structure of various synthetic rubbers in such a simple manner that most of the members had the feeling that, having been born 30 years too soon, they learned chemistry the hard way. Mr. Lybeck's talk was not only interesting and informative but also encouraging to civilian motorists. The use of synthetics for electrical insulation promises to bring about phenomenal changes in that industry. The members remained until after 10:30 P.M. to inspect samples of various synthetic rubber products, among them a 600-16 butyl rubber casing which had been run several thousand miles and upon which many cast covetous glances. Mr. Lybeck insisted, however, that it must be returned to the laboratory. — NATALE GADA '26, *Secretary*, General Electric Company, 129 Church Street, New Haven, Conn.

Technology Club of St. Louis

The annual election of the Club was held on November 12. Those elected were as follows: Lester B. Leighton '24, President; Leland K. Cowie '22, Vice-president; and Ellis C. Littmann '33, Secretary-Treasurer. Samuel F. Gordon '23 and Milton Lief '37 were elected to the board of governors for three-year terms.

Professor Dietrich Gerhard of the faculty of Washington University gave a

very interesting discussion on provocative current literature concerning trends in our social structure. — We have had a number of interesting meetings during the past year. Last February, Edward L. Bowles '22, Professor of Electrical Engineering at the Institute, talked to the group; and in April, Per K. Frolich '23 told us about some aspects of synthetic rubber. Over 110 attended this very successful April meeting.

Later in the spring, another meeting was held, at which several of the club members, including David L. VanSyckle '33, a lieutenant colonel in the Ordnance Department of the Army, Paul H. Buxton '16 of Western Cartridge Company, and Robert B. Semple '32 of the Monsanto Chemical Company, explained to the group how their activities were contributing to the war effort. — The annual picnic was held at the end of August and was well attended.

During the year, a register of the St. Louis Alumni was published by the Club. In the booklet, which included the new bylaws recently adopted, the membership was listed alphabetically by classes and by employers. The year proved a most interesting and busy one for the Club, and we have every hope of continued activity. — ROBERT B. SEMPLE '32, *Retiring Secretary*, Monsanto Chemical Company, St. Louis, Mo. ELLIS C. LITTMANN '33, *Secretary*, 2 Tuscany Park, Clayton, Mo.

Washington Society of the M.I.T.

The Society met as usual at 5:30 P.M. on Friday, October 23, at the Y.W.C.A., 17th and K Streets, Northwest. President Mert Emerson '04 welcomed and introduced the "first-attenders." He then introduced Stuart C. Godfrey '07, a brigadier general in the Army Air Forces. General Godfrey said that our speaker, Lieutenant Colonel Paul W. Thompson, had as a captain made two trips into Germany, studying hydraulic laboratory methods and other matters. As a skillful reporter, he helped the Corps of Engineers to revise its plans and methods. He was described as the executive officer of the troops division and senior intelligence officer in the office of chief of engineers.

Colonel Thompson, author of "Modern Battle," "Engineers in Battle," and other military papers, undoubtedly had an exceptional opportunity to keep in touch with military engineering developments — in Europe, particularly. He gave an interesting talk on the work of engineers in modern battle to speed up the work of their own forces and to slow up the enemy. In a discussion of river crossings as obstacles, he cited the new method the Germans employed at the Meuse crossing, using dive bombers instead of artillery preparation. Colonel Thompson described how engineers have to actually place dynamite against fortifications they want to destroy. Many times they trudge with a load of dynamite hung around their necks as they approach such obstacles. The engineer's work, if anything, is more hazardous than the usual soldier's. The

laying and removal of mines came in for a thorough discussion, as did demolition and the use of TNT, commonly called the "engineer's tool." The work of special types of engineers who build airports under difficulties was also covered. Colonel Thompson said that the nose dive that faith in fortifications received in 1914 and in 1940 had been changed considerably with the remarkable record established at Sevastopol.

Proctor L. Dougherty '97, retiring Honorary Secretary, introduced a number of his classmates at the meeting. F. A. Hunnewell, Tom Weymouth, and Jack Ilsley took bows. Marshall Leighton '96 introduced his classmate, Bradley Stoughton. Allen Pope '07 was welcomed back from the Midwest.

The large turnout at the second meeting this fall again gave evidence of the real interest that Washington Alumni have in Technology. The following M.I.T. men and guests attended and enjoyed the ensuing dinner: George W. Stone '89, John G. Crane '90, William B. Poland '90, Marshall O. Leighton '96, Bradley Stoughton '96, Proctor L. Dougherty '97, Frederick A. Hunnewell '97, John P. Ilsley '97, Thomas R. Weymouth '97, Martin Boyle '98, W. Lorrain Cook '03, Merton L. Emerson '04, Amasa M. Holcombe '04, Stuart G. Godfrey '07, John H. Leavell '07, Edward L. Moreland '07, Allen Pope '07, Edward P. Chapman '09, Franklin Osborn, 2d, '11, Carl G. Richmond '11.

Edwin C. Holbrook '12, Ronald M. Wilson '13, Alfred E. Hanson '14, Aubrey E. Beidelman '15, Sidney J. Judson '18, Hamet D. Manuclian '18, Aram G. Paul '18, Louis J. Grayson '19, John Nolen, Jr., '20, Kenneth Bernard '22, Rudolf H. Blatter '22, Harry H. Fisk '22, William K. MacMahon '22, James R. Morton, Jr., '22, William V. Cash '24, George D. Fife '24, John E. Jackson '24, George E. Lamb '24, Henry C. Hoar '25, Kenneth S. Lord '26, George W. Smith '26, Mary O. Soroka '26, Laurence B. Cheney '27, Gordon E. Thomas '27, Robert M. Tucker '27, M. Waldo Keyes '28, George D. Mock '28.

John A. Plugge '29, Nicholas P. Stathis '29, Albert F. Bird '30, Oliver G. Green '30, Henry D. Randall, Jr., '31, Stuart C. Westerfeld '31, Frederick M. Moss '32, C. Wallace Bohrer '33, M. Elsa Gardner '33, Rafford L. Faulkner '33, Simeon Van T. Jester, Jr., '34, Raymond B. Jewett '34, Horace L. Woodward, Jr., '34, Blake D. Mills, Jr., '35, Kasmierz J. Winiarski '35, Nicholas A. Egoroff '37, Earl D. Fraser '37, George B. Hunter, Jr., '37, George J. Stansfield '38, James A. Smith '39, Samuel L. Cohen '40, M. Arnold Copeland '40, Robert S. Harper '40, Frederick S. Magnusson '40, Jack H. Schaum '40, Roger G. Blum '41, Harlan E. McClure '41, Monroe R. Brown '42, and guests R. G. Beer, W. Bundy, and Horace L. Woodward, Sr. — M. WALDO KEYES '28, *Executive Secretary*, 6514 Brennon Lane, Chevy Chase, Md. WILLIAM K. MACMAHON '22, *Review Secretary*, Rosslyn Gas Company, 3240 Wilson Boulevard, Arlington, Va.

Alumni in Winchester

Sparked by Francis A. Barrett '24, President of the Alumni Association, an informal get-together of M.I.T. Alumni residing in Winchester was held on November 17 at the Winchester Country Club. Fifty-seven of the nearly 200 Tech men residing in Winchester attended. President Barrett announced that this meeting was held as an experiment to find out if the Alumni who live near Boston would be interested in holding meetings a few times each year. A show of hands revealed that those present had enjoyed themselves sufficiently to want another meeting in the near future.

Two reels of movies made by Harold E. Edgerton '27 were shown. Charles E. Locke '96, Alumni Secretary, acted as interlocutor, explaining the scientific technique with which the Edgerton movies are made. Most of the evening was spent in visiting. Many neighbors were surprised and delighted to learn of each other's Technology affiliations.

The following Alumni and staff members attended the meeting: Frank W. Howard '91, Alan A. Claflin '94, Charles E. Locke '96, Edward S. Mansfield '96, Henry E. Worcester '97, Albert K. Comins '09, Henry K. Spencer '09, Charles E. Greene '10, Albert K. Huckins '10, Donald G. Crowell '14, Howard A. Morrison '14, Fritz C. Blomquist '15, Warren C. Whitman '15, Carl W. Wood '15, Harold N. Blount '18, Warren A. Maynard '19, Percy Bugbee '20, George C. Manning '20, Donald B. Lovis '21, Charles E. Thornton '21, Charles H. Burnham '22, Malcolm G. Dodge '22, Colver P. Dyer '22, Fred C. Hall '22, George G. Marvin '22, Stephen B. Neiley '22, Richard H. Frazier '23, Herman F. Pike '23, Francis A. Barrett '24, Hoyt C. Hottel '24, William C. Ross '24, William F. Morton '25, Kenneth C. Reynolds '25, George I. Chatfield '28, James A. Cullen '28, Ralph T. Jope '28, Richard C. Ashenden '31, Francis O. Merchant '33, Edward H. Nowell '34, P. Roland Hanson '35, Copeland C. MacAllister '35, Eugene P. Newell '35, Franklin Fallwell, Jr., '38, Reinhardt Schuhmann, Jr., '38, Leon A. Baghdoyan '42, Arnold H. Smith '45, and from the staff, Howard R. Bartlett, John Chipman, Malcolm S. McIlroy, Robert G. Moch, Charles A. Myers, and Ronald H. Robnett.

CLASS NOTES

1877

Deep regret must be felt by all of us at the passing of Henry D. Hibbard on October 17. Up to a few months ago, he seemed to be one of our outstanding members both mentally and physically. Always deeply interested in our class activities, he was eager to hear of our meetings — who attended them, what each was doing, and how each and every one appeared.

Your Secretary spent a pleasant half hour with Hibbard just before our class meeting last April. He was sorry not to be

1877 Continued

able to attend. At that time he made mention of some trouble that interfered more or less with his activities, but there was no indication that his end was approaching. During the summer the trouble became aggravated, and he was confined to his bed for two months or more before he died. He was always keen, vivacious, and full of anecdotes, and he possessed a charming personality. Our Class was honored to have such a man. We shall miss him.

The following account taken from a Plainfield, N.J., newspaper gives a good record of Hibbard as an engineer, as a scientific and professional steel manufacturer, and as a human being interested in hobbies, recreation, public affairs, and social attainments: "Henry Deming Hibbard, consulting engineer and authority on production and processing of steel, died at his home, 144 E. Seventh St. . . . He was 86 years old. . . .

"Born in Boston, Mr. Hibbard was graduated from Massachusetts Institute of Technology in 1877. For two years he was employed as chemist by the Providence, (R.I.) Gas Company. In 1879 he became associated with the Nashua Iron & Steel Company, Nashua, N.H. From 1882 to 1885 Mr. Hibbard was with the Norway Iron & Steel Company at South Boston, Mass. For the ensuing three years he was with the Linden Steel Company at Linden, later absorbed by the Jones & Laughlin Steel Company, where he made the first American steel armor ever to be struck by hostile shot, the protective deck of the cruiser Baltimore. In the battle of Manila a Spanish 6-inch shell struck the cruiser but was deflected by the armor which was not penetrated.

"With a party of 300 engineers, the first to make such a trip, Mr. Hibbard went to England in 1889 to visit British shipyards, steel and iron plants. In 1891 he went to Sheffield, Eng., to study the Hadfield system of making steel castings. Mr. Hibbard was a delegate to the World Engineering Congress at Yokohama, Japan, in 1929. On that same trip, Mr. Hibbard visited the leading steel centers abroad and carried his investigations abroad a step beyond, including Egypt and its pyramids, temples and wonders in stone carving. From the latter, he developed revolutionary ideas concerning the use of hardened steel among the Egyptians.

"At Mr. Hibbard's door is laid the comparatively recent and widely used term 'sonim' and he is generally credited with coining the word to designate 'solid non-metallic impurities of steel,' about which little was known until his writings and readings of papers on the subject brought home the importance of this property. In Plainfield he was associated with the Hibbard-Rodman-Ely Safe Works and its successor, the Manganese Steel Safe Company. He served two terms as a member of the Common Council, retiring in 1908.

"As one of the oldest members of the American Institute of Mining Engineers and the American Institute of Mechanical Engineers, Mr. Hibbard belonged to the

Legion of Honor of the former organization, made up of those who have been members for more than 50 years. Mr. Hibbard's scientific bent was naturally carried over into his hobbies, one of which was collecting curious objects involving scientific principles. He was interested in problems of many kinds, and his keen mind delighted in finding humorous paradoxes in problem solutions.

"Mr. Hibbard's genial personality made him much at home in social gatherings, and he was long active in the affairs of the Shakespeare Society of Plainfield, which has conducted readings of Shakespeare's plays at its regular meetings for more than 50 years. Chess was one of Mr. Hibbard's favorite diversions, and he was one of the best, as well as the oldest member of the Plainfield Chess Club. He joined the club at the time of its organization three years ago and played in almost all the team matches. Fellow-members were amazed to see him climb up to the top floor of the City Hall to attend a club meeting, even as late as last spring, when his health was not good. Mr. Hibbard was the donor of a silver cup which bears his name and which is presented each year to the city chess champion. He also carried on a large number of correspondence chess games at once, sending out moves by postcard to his different unseen opponents. Even in late years, Mr. Hibbard drove a car frequently and played golf. He liked especially to try out new golf courses. In 1940 he was the oldest man entered in the New Jersey Senior golf tournament, and finished well up in his division, although competing against some men more than 14 years his junior.

"Mr. Hibbard married twice. His first wife, the former Miss Rebecca Sims Wickersham, daughter of Col. Samuel Wickersham of Pittsburgh, died in 1905. Later he married Mrs. Sallie Ames Brooks of Plainfield, mother of Van Wyck Brooks, the author. She survives as do two children by his first marriage, Lyman C. Hibbard of 1344 Martine Ave., and Mrs. William H. Whyte of Warrenport, Northern Ireland, and two grandchildren, John and Ursula Whyte." — GEORGE W. KITTEDGE, *Secretary*, 592 North Broadway, Yonkers, N.Y.

1887

The death of Frank L. Solomon was announced in the class notes in the November Review. The following obituary is taken from a Daytona Beach paper: "Frank L. Solomon, 75, retired real estate dealer who died at Halifax hospital on July 24 was born at No. Pownal, Vt., and came to Daytona Beach twenty years ago. He was active in business until ill health forced his retirement a short time ago. He is survived by his widow." At the time of his attendance at Technology, Solomon was a resident of Somerville.

From Frank Brett we learn that his harvesting is all done, and the Bretts are all set for the winter. He says he has had wonderful crops, and Mrs. Brett has preserved more than ever. One apple tree was loaded with the finest Gravensteins imaginable, and Frank called up the boys club

at Camp Wing and told them to come over and stock up. They did, and in a few minutes gathered up three barrels of windfalls. Your Secretary is pained to announce the death of Mrs. Brett's sister, Mrs. Cohoon, in September last. She will be remembered as assisting her sister at the afternoon tea which Frank and Mrs. Brett gave in honor of our 55th class reunion at their delightful country manor, Crooked Lane Farm.

On August 4, the Illinois Society of Architects tendered a testimonial dinner to our illustrious classmate Richard E. Schmidt, who was retiring from public service after eight years as building commissioner of the city of Chicago to devote his time to his private practice. The gathering was comprised of leading citizens of all professions and although it was a noonday luncheon, it was almost three o'clock before the meeting adjourned. Nobody left until the close of the meeting, when Dick was presented with a framed hand-lettered illuminated testimonial drawn up by the society and signed by its officers. The following quotation is from the August-September *Monthly Bulletin* of the Illinois Society: "At the regular Board meeting of the Illinois Society of Architects, July 14 the following resolution was passed without a dissenting vote: 'WHEREAS, Richard E. Schmidt, eminent Chicago architect of long standing and member of the Illinois Society of Architects through many years, was persuaded eight years ago by Chicago's Mayor, Edward J. Kelly, to administer the office of Commissioner of Buildings, which assignment Mr. Schmidt accepted as a public duty, and WHEREAS, Mr. Schmidt's administration of that office has been marked throughout by impartial application of the state and city building laws and ordinances, with which no man is more familiar, now therefore BE IT RESOLVED by the Officers and Board of Directors of the Illinois Society of Architects in regular meeting assembled, that they hereby express their sincere appreciation to Mr. Schmidt for his unflinching devotion to duty and impartial administration in upholding the law.' The resolution was ordered engrossed for presentation to Mr. Schmidt at a testimonial luncheon held in the Union League Club on Tuesday, August 4."

For the information of our classmates who may have friends or relatives in the armed services, The Review announces that the editors will be glad to help keep classmates in touch by forwarding letters to men in the service, as there is serious objection on the part of the government to the publication of information disclosing the station of a vessel or the location of a regiment. — NATHANIEL T. VERY, *Secretary*, 15 Dearborn Street, Salem, Mass.

1888

From a letter to the Secretary by President Ned Webster in the latter part of October, I quote the following: "I have a grandson-in-law at officers' training camp in Fort Sill, Okla., and a grandson in a Marine officers' camp at Quantico. I also have three nephews in the Navy —

1888 *Continued*

one lieutenant commander and two senior lieutenants. So you see I have some military standing!" I doubt if any member of the Class can equal this record for members of his family in the different branches of the armed services. If anyone can, I should be glad to hear from him. Ned received a gold medal for the best group of orchids at the annual flower show of the Massachusetts Horticultural Society, held in Horticultural Hall, Boston, in October.

In a list of "Members of the Old Guard 1942" issued by the American Society of Mechanical Engineers appear the names of two '88 men, William L. Dearborn and the Secretary, as they have been members of the Society for "fifty years and more." The name of the late Benjamin G. Buttolph was in the list of those who have been members from "thirty to fifty years."

William A. Conant, a special student in Chemistry with our Class in 1884-1885, died on August 13. He was a very successful manufacturer of raincoats. None of the records of either the Class or the Institute have anything about his career except that his home was at 82 Sewall Avenue, Brookline, Mass., when he retired sometime previous to 1935. The *Hartford Times* of September 4 printed the following in regard to Conant's death and bequest to Technology: "Massachusetts Institute of Technology was bequeathed \$230,000, by the late William A. Conant, millionaire Brookline raincoat manufacturer, whose will is on file in probate court. . . . His will revealed he had left an estate valued at more than \$1,000,000. . . ." Bird, Conner, Merrell, and Nichols will remember Conant from their chemistry classes, perhaps, but he was never heard from by William G. Snow, our original Class Secretary.

The Secretary wishes to announce that our flower fund now amounts to a little over \$75. — BERTRAND R. T. COLLINS, Secretary, 39 Wiggins Street, Princeton, N.J. SANFORD E. THOMPSON, Assistant Secretary, The Thompson and Lichtner Company, Inc., 620 Newbury Street, Boston, Mass.

1889

On October 26, Mr. and Mrs. E. V. French quietly celebrated their golden wedding at their home in Andover, Mass. The Secretary was not present, but he can certify that E. V. has not changed perceptibly in outward appearance or in fine character since the first day he climbed Rogers steps. The Class offered, and now repeats, its congratulations. — WALTER H. KILHAM, Secretary, 126 Newbury Street, Boston, Mass.

1891

Our classmate William Hussey Adams died on Monday, October 26, at Newark, Del. Most of us had not seen him for a long time, and he did not attend any of our recent dinners or reunions. Our records show that he was in Course V at Technology and that for many years he was general manager of the Eastern Finishing Works (textile finishing) plant

at Kenyon, R.I. He married and had a son, William H. Adams, Jr., who is in the Class of 1925. Adams was an authority on wild flowers and was interested in radio and photography. The following is from a letter from his son to the Alumni Association: "After my father finished Technology in 1891, he became connected with the Silver Springs Bleachery in Providence, R.I., as a chemist, a position he held for several years. Then he joined the William L. Barrett Company of New York and Boston, manufacturers of heavy cotton fabrics. Father remained with this organization during the entire remainder of his technical career of over 40 years. First he was a chemist with this company, and then later he was vice-president and general manager of the Eastern Finishing Works, which was a subsidiary company. From 1934 until his retirement in 1939, he was technical adviser to the New York office of the parent company."

Father's work lay mostly in the field of heavy cotton fabrics, and he made many important contributions in the field of waterproofing and mildew-proofing of such fabrics. He had numerous patents and publications in this and related fields, and many of the processes which he developed are in common use today. During practically his entire career he maintained active interest and membership in the Alumni Association of the M.I.T., the American Chemical Society, and several other trade and technical organizations. On his retirement in 1939, he came to live in Newark, Del., to be near my wife and me and his two young granddaughters, whose antics proved to be a never-failing source of joy to him. Although failing health restricted his activities over the past year, his interest in technical matters remained extremely keen, and his advice to me on my own technical problems was extremely valuable."

We have heard from Jim Swan through others. He is still working for the government in Washington. — A recent letter from Steve Bowen reads as follows: "The only members of '91 I have seen lately are Lin Damon and Harry Young, both of whom seemed very fit. About January 1, I expect to go to Winter Park, Fla., again this year, if the railroads will take me. As you know, Ambrose Walker has a charming home there, where he stays for a long season. Last year Fred Blanchard was also at Winter Park for several months, but from last account he does not expect to go south this year. I do not feel quite up to war work and am just trying to keep out of other people's way."

Howard Forbes has not been well and at this writing is confined to his bed. He says that he is glad to see any of us at any time. Two of his boys are in the Army, one in California and the other in Alabama. The third boy, the oldest, is in airplane work. We hope Howard will be up and around again soon.

Arthur Hatch is "in the Army now" — civilian branch, United States Engineers, Boston. He says he enjoys the work but the hours are long and there are no holi-

days. — George Spooner retired some four years ago and is getting used to it, but perhaps he is still hankering for some of his former activities. He made a two weeks' trip to Massachusetts in August, visiting relatives, but couldn't move around much because of gas restrictions. — The following change in address has been received: Richard W. Hale, Post Office, Needham, Mass. — HENRY A. FISKE, Secretary, Grinnell Company, Inc., 260 West Exchange Street, Providence, R.I.

1892

The sad news of the death on December 3 of William R. Kales, our Class President, has just been received. An obituary of our beloved classmate will be found in the *Institute Gazette* section of this issue of *The Review*.

The finished portrait is "very fine," and that is putting it mildly. Your Secretary has been disappointed in not receiving a reply to his letters from some of our classmates. R. R. Taylor writes from Wilmington, N.C., that he has been very sick and in the hospital at different times. He was released from the Mayo Clinic in Rochester, Minn., about a month ago. He wrote: "Thanks to a kind Providence and skillful physicians, I am much better now."

C. C. Waterman writes from Miami, Fla., that he has had two operations and is still under the doctor's care. He was unable to get north the past summer.

Set aside January 30 for Alumni Day, which will include Class Day exercises (and probably the presentation of the portrait), and the grand Alumni Banquet at the Hotel Statler in the evening, with a class get-together preceding the banquet. — CHARLES F. PARK, Secretary, Room 5-111, M.I.T., Cambridge, Mass.

1893

Apropos of our 50th reunion this year, L. B. Buchanan writes: "The Kaiser cheated us out of our 25th and now Hitler and Hirohito cheat us out of our 50th. There appears nothing for us to do but to get drunk on June 5."

The attractive and well-appointed Brookline Country Club, where our June 5 celebration is to be held, may be able to satisfy even Buch's wildest desires. Judging by returns thus far received, Buch will find assembled there a good-sized gang, including some men who have not been back since graduation.

At the graduation exercises of the Class of 1943 to be held in Symphony Hall in the forenoon of February 1, our 50-year Class will participate by joining in the academic procession and by being among the guests seated on the platform. Following the graduation exercises, the Class will be entertained at luncheon by President Compton. While the war has advanced this year's commencement to mid-winter and divorced this event from the 50-year reunion to be held at the Brookline Country Club on June 5, it is hoped and expected that '93 will turn out in good numbers for 1943's graduation February 1 and also for the class day exer-

1893 Continued

cises on January 30. At the latter event, Charlie Spofford, long Head of the Department of Civil Engineering at the Institute, will represent the Class as the 50-year speaker.

Edna Wadsworth Moody, remembered as the vivacious and charming Chemistry coed, writes: "I'm never near enough to attend reunions, but here is hoping you'll have a grand old time. Life in the seventies is delightful still if one can only keep even near well. My life has been so knit in with that of Dr. Moody, who has accomplished so much, that I would have to rehearse all he's done to give a real picture of my life. He still likes to hold my hand, and we still have wonderful times together, and we still think the Massachusetts Institute of Technology the best technical college in the world. Good luck to you, and continued success and happiness to all our classmates of 1893." Edna Wadsworth is the wife of Herbert Raymond Moody, '92, emeritus professor of chemistry of the College of the City of New York and chairman of the division of chemistry and chemical technology of the National Research Council. The Moodys live near Washington at Walnut Lane, Vienna, Va.

Harold Mott-Smith, for many years past engaged professionally as an artist for the General Electric Company at Schenectady, N.Y., writes: "My life as an artist, which began in the fall of 1893 when I left Boston to go to France and begin my studies, has not served to alter my firm conviction that Technology was and is a wonderful institution in which to get an educational start in any of life's activities. It may amuse you to learn from the following anecdote how Tech came to fit into my life. You remember that in our day Whitney [Willis R. Whitney '90] was Thomas E. Pope's assistant in the Chemistry Department. When my section was, one day, considering the reaction of fluohydric acid on silica, I etched a sketch of Pope upon a piece of glass covered with wax, with the acid, and concluded that glass was a very sympathetic medium for etching. When Whitney read my conclusion he said: 'Mott-Smith, you're a good artist but a damn poor chemist. What course are you taking?' 'II,' I replied. 'Well why don't you shift to IV?' And I did. You are of course aware that Whitney became the founder of our research laboratory in the General Electric Company. We have been good friends and in close contact for many years. Some years ago the doctor sent to me for comment a sketch he had attempted for a bronze plaque he wanted for a cabinet. I returned the sketch with the comment that he was a good chemist but a damn poor artist. If I were even half the artist that he is the chemist, it still would not disprove that M.I.T. was best for us both.

"It may be of interest to recall that two boys who were at Technology in our day, Masters '95 and Hazelton '94, became professional artists since, as did Charlie Woodbury '86, whom I got to know in after years. I think these men, like myself, are grateful for what the Institute gave us. Please convey my kindest remem-

brances to the boys of '93. When June 5 comes around, I shall make an attempt to be with you, but much depends upon the Federal government and on nine grandchildren."

As we go to press, word is received of the death on November 8 of William E. Northey of Salem, Mass. He was a member of the Class during our freshman year. After leaving Technology, he was engaged during his lifetime in the insurance and real estate business in Salem. — The following changes of address have been received: John C. Hawley, Post Office Box 1325, Delray Beach, Fla.; Albert S. Moulton, R.F.D. Number 1, Derry, N.H. — FREDERIC H. FAY, *Secretary*, 11 Beacon Street, Boston, Mass. GEORGE B. GLIDDEN, *Assistant Secretary*, 551 Tremont Street, Boston, Mass.

1895

There is an adage that "no news is good news." This is not always true. Your Secretary was pondering at the last moment whether or not to skip this issue, when he received a telegram from Fred B. Cutter in New York City, saying that Azel Ames, a colonel, died on Monday, November 23. It is sad to learn of the passing of another of the faithful guards of the Class. A fuller account of the life of Colonel Ames will be given in the February Review.

Frederick W. Harris, XI, was retired from the Board of Transportation of New York City on October 1 after a service with the state and city of 36 years. He is now living at 63 East Westfield Avenue, Roselle Park, N.J. — Happy New Year from your Secretary. — LUTHER K. YODER, *Secretary*, 69 Pleasant Street, Ayer, Mass.

1896

John Rockwell has sent The Review the following tribute to the Secretary, which the editors are happy to incorporate in these notes: "The 45-year history of the Class of '96 is out at last. Many comments have been received and appreciated by the Secretaries. Let's keep one thing straight by a glance at past records of the work accomplished in bringing this excellent biography to fruition. Aside from a number of regulars who have been able and always willing to support our activities of whatever nature, and aside from the efforts of our small publications committee which met very infrequently, and notwithstanding the fact that your Assistant Secretary has occasionally added an item to the class notes in The Review, the fact stands out like a Doo-little or a MacArthur assignment that Charlie did the painstaking and meticulous job of getting out this historic sketch of our Class as of this date. Most of us can appreciate what a real undertaking has been successfully culminated. In spite of many vicissitudes which necessitated postponement of presenting this volume to the Class, Charlie stuck to his task and is entitled to full credit for his efforts and should receive our grateful and everlasting gratitude. Let's give the credit where credit is due."

The class book is now pretty well distributed, and a number of additional notes of commendation have been received. The pleasing feature is that the book has evoked responses from some classmates who write very rarely, as Jack Eynon, Clem Tower, Clarence Perley, Lew Tappan, L. N. Whitney, and others. Not content with writing one letter, Arthur Baldwin has written a second letter in his characteristic breezy style. Doc Coolidge wrote that he devoted much of a Sunday to the book — with the implication, although not the actual statement, that he neglected church that day. Partridge's book reached him at Syosset Trailer Park at Syosset, Long Island, N.Y., where he has been camped in his good old trailer since the latter part of May, and he reported that he had been able to go through the book pretty thoroughly. His only criticism was that it perpetuated the old canard that Professor Faunce got a rake-off on the sale of drawing instruments. Since that appeared in the verbatim report of our class day speeches, the editor did not feel at liberty to make any changes in those reports, especially as in the Faunce case no one really believed the story.

Myron Fuller's book finally caught up with him in Texas, where his address for the winter is Fulton Cottages, R.F.D., Rockport, Texas. Fulton is a small village three and one-half miles north of Rockport, and perhaps 25 miles north of Corpus Christi. Fuller's cottage is right on the sea front. In traveling to Texas from Florida, the Fullers were impressed with the efficiency of the soldiers guarding our southern coast. Three times during the trip they were halted and required to show proof of their citizenship — once on entering the outskirts of New Orleans, once outside of Galveston before entering the city, and once on leaving Galveston. The soldiers were courteous, and the Fullers had no difficulty satisfying them that they were peaceful United States citizens. Although Fulton is a small village, there is a shipyard building patrol launches and barges, and there is considerable activity on the water front, where in connection with the practice with big hydroplanes, the ships often land directly in front of the Fuller cottage. At the time the letter was written on November 20, geese were flying over every day and tens of thousands of ducks were feeding in sheltered spots. Fishermen were coming in loaded down with strings of sea trout and other fish, and there were plenty of tarpon in the open gulf. The Fullers felt that they were very nicely situated for the winter, and that with an "A" ration book for gasoline, they would be able to run around a little bit. Fuller has run his car only 11,500 miles in a year and a half, and 8,000 of those miles were before the war broke out last December. In contrast with the thousands of miles that he used to drive each year, he is now almost standing still.

In Paul Litchfield's letter he remarked that his plans for taking life a little easier had been very much upset, as the war had the effect of making him busier than ever in dealing with the crude rubber situa-

1896 Continued

tion and building up the Goodyear Aircraft Corporation, which in a year had gone from 2,000 to 30,000 employees and is still growing.

Karl Pauly put one over on the Secretary. He wrote to ask who No. 97 was on the cut of our "Technique" group picture. The Secretary had to reply that, although the face looked most familiar, he was unable to identify the person. Incidentally, Pauly himself was listed on the key as No. 236. Pauly came back saying that No. 97 was K. A. Pauly, and then he wanted to know who No. 236 was. The Secretary is unable to tell him, and will therefore appreciate it very much if anyone can identify No. 236, who is erroneously designated as Pauly.

Admiral Bakenhus was one of the veterans in the Navy group on the reviewing stand for the Navy Day parade in New York on October 24. Very good pictures appeared in the New York *Times* the following day. It is of interest that Lieutenant General Hugh Drum, who is in the group, is a brother of our late classmate Alphonsus L. Drum.

Events occur very rapidly these days. Last month these notes contained the announcement of the engagement of Bob Fuller's son. Now his marriage is reported as having occurred on October 24 in Auburn, Mass., where the bride and groom became residents after their honeymoon in Maine.

W. E. Haseltine has gone to Washington to do his bit in the war effort as a colonel in the Corps of Engineers. He is located at 19th and B Streets, Southeast. — Two recent letters from Victor Shaw disclose that he has recently made a move, although he still retains his permanent address in Los Angeles. He is now a spotter for fires and planes at the Newhall Ranger Station, Newhall, Calif. His lookout tower is located on Reservoir Summit, right at the angle where the Los Angeles, Ventura, and Kern counties meet. By road this tower is about 30 miles from the town of Newhall. In getting away from the damp coast atmosphere to a higher altitude, Victor is finding a great benefit to his physical condition. He takes the weather observations with the various instruments three times a day and reports bearings on any smoke that appears, so that with similar observations from other lookouts a fire can be definitely located. He is on his own and does his own cooking, laundry, and household work, but this is easy for him after 40 years of experience. California had had a large and disastrous fire at Malibu, but this was out of Shaw's territory.

October 28 was a red-letter day for the Secretaries. Harry Tozier turned up at Technology, and the Secretary had a fine long chat with him. Harry and Mrs. Tozier were in town for a few days because of the illness and hospitalization of his sister, but he was planning to return the next day to Rochester, N.Y., where he has now taken up his residence in a rented house with ample grounds around it. In his retirement he has no specific tasks, but he says that there has been plenty for him to do around the grounds,

although he has never in the past engaged in lawn mowing and gardening.

Late in the afternoon of that day the Secretary had a great thrill when he officially christened the new shell at the M.I.T. Boat House. This shell was given the name *John A. Rockwell '96*, in recognition of John's long and fine services as the chairman of the Alumni Association Advisory Council on Athletics. John, of course, was there, and also present was Gene Hultman, who had previously had a similar shell named for him because of the close co-operation that he as chairman of the Metropolitan District Commission had given to the M.I.T. rowing activities. This shell had been purchased by the Athletic Association out of the income of the Frank Harrison Briggs ['81] Fund and was built by George Pocock of Seattle, Wash. It is the standard Pocock eight-oared shell. Immediately after the christening, the crew took it out for its first dip and reported that it functioned in fine fashion. The Class of '96 is highly honored to have now two shells named after two of its members. The *Christian Science Monitor* carried a picture of the group taken while Rockwell was acknowledging the honor conferred upon him.

On November 15, the Secretary again enjoyed the hospitality of Charlie and Bertha Tucker at their farm in North Andover. Charlie had finished picking his apples, but he still was sorting them over and delivering them to market. This year he had found it necessary to work harder than usual because of the difficulty of hiring men, but he was feeling fine. He complained that the annual trip which he and Bertha had planned this year had to be called off because there are no facilities available for coastwise steamer travel, which they always prefer, and even railway travel in crowded trains had no attraction. They actually got as far as Boston on a trip. In addition to his orchard, Charlie has eight cows, all giving milk, which are treated in the most approved scientific dairy fashion. The dinner of which the Secretary partook was started with the famous Tucker tomato juice cocktail, the recipe for which the Secretary is always glad to provide.

It is with great regret that we record the death of Joe Knight in Pittsfield on November 3. Joe was born in Osawatomie, Kansas, in 1872. After being graduated from M.I.T., he attended the Harvard Law School, receiving his degree in 1899. For many years he practiced law in Boston, and more recently in Pittsfield. He was a member of the bar of the Supreme Court of the United States and of the state and Federal courts of Massachusetts and Hawaii. From 1920-1927, he was assistant reporter of decisions for the Supreme Judicial Court of Massachusetts. During the first World War, he was an associate member of the Legal Advisory Board of District 23 in Massachusetts, secretary to the members and special assistant to the National War Labor Board, and manager of the Washington office of the National Industrial Conference Board. He had been a member of the executive

committee of the Alumni Association, vice-president of the Alumni Association, and a member of the Alumni Council. He married Ethel Glinn Holwill in January, 1906, in Pittsfield, and there were two sons and two daughters, who with his wife survive him. Joe will be much missed as his was a familiar face at our class and alumni gatherings. He was always good company.

The very latest word on the Alumni Fund is that, while the Class has reached 95 per cent of its quota on the basis of number of contributors, it has only 51 per cent of its quota on the basis of the amount contributed, which is not such a good showing in contrast with the showing of other classes of about our time. It will cheer Harry Grush, our Class Agent, very much if additional contributions are sent in to get our class standing up where it should be. Happy New Year to all! — CHARLES E. LOCKE, *Secretary*, Room 8-109, M.I.T., Cambridge, Mass. JOHN A. ROCKWELL, *Assistant Secretary*, 24 Garden Street, Cambridge, Mass.

1897

John W. Fitzgerald, VI, died on November 2 at his home in Milwaukee, Wis. He was a research engineer with the Briggs and Stratton Corporation, inventors and manufacturers of many devices used on automobiles. He was 65 years of age. John was born in Chicago and was graduated from the University of Michigan before coming to the Institute.

At the October meeting of the Washington Society of the M.I.T., the Class was represented by Tom Weymouth, Jack Ilsley, Frederick Hunnewell, a commander, and Proctor L. Dougherty.

The Review Editors have advised Class Secretaries that while the War and Navy Departments do not object to the listing of the names and ranks of the Technology men who are in the uniformed services, they do object to the publishing of the units and addresses. The Editors also advise that they will gladly aid any alumnus who would like to communicate by mail with any Technology men who are in the armed services. If letters for men in the services are sent to The Review editorial office, the editors will act as a central forwarding station.

Charles N. Haskins, VIII, professor of mathematics at Dartmouth College, died at the college infirmary in Hanover, N.H., on November 14, at the age of 68. Dr. Haskins was born in New Bedford, Mass. After being graduated from the Institute, he received a master's degree from Harvard University in 1899 and also one in 1900, and in 1901 he received the degree of doctor of philosophy from that college. His professional services included those of mathematics instructor at Technology, Yale University, Cornell University, and of assistant professor of mathematics at the University of Illinois. In 1909, he went to Dartmouth College, and in 1916 was appointed Chandler Foundation professor of mathematics, a position which he held at the time of his death. During the first World War, Dr. Haskins was a master computer in the Army Ordnance

1897 Continued

Department. He was an associate member of the United States Naval Institute, a fellow member of the American Academy for the Advancement of Science, and a former vice-president of the American Mathematical Society. He leaves his widow, whom he married in 1909.

In these days when our waking hours, and too often the hours when we should be sleeping, are filled with thoughts of war bonds, community chests, Red Cross memberships, and Salvation Army contributions, let us not forget the M.I.T. Alumni Fund. The Secretary has just been advised that the standing of the Class as of November 13 is as follows: A quota of 69 contributors was assigned to '97, and 52 men have contributed — a percentage of 79. The money quota assigned was \$1,600, of which \$1,001.50 has been contributed — a percentage of 63. Come on, fellows, let us boost our percentage to 100. The Class of '97 could never be accused of being a laggard, and we must not allow such an accusation to be made now. — JOHN A. COLLINS, JR., *Secretary*, 20 Quincy Street, Lawrence, Mass.

1901

F. Ward Coburn has recently been elected president of the E. and G. Brooke Iron Company, Birdsboro, Pa. He was also elected president of the Richard Ore Company, Wharton, N.J. Ward was vice-president and general manager of the Birdsboro plant before he was named president to succeed the late Robert E. Brooke.

Harry R. White has retired after more than 32 years of service with the engineering department of the American Telephone and Telegraph Company in New York City. Harry's telephone work began in 1910. For nine years he collaborated with other members of the department and with the engineering staffs of the associated telephone companies in developing exchange fundamental plans which defined the location and size of local central offices and the related underground and aerial systems of telephone wire distribution in many of the large cities. During the next four years he worked on cost studies to determine the types of central office equipment best suited for meeting the situations encountered in extensive conversions from manual to dial operation in that period. For the last 20 years he has been expounding engineering considerations relating to private branch exchange equipment. On the occasion of Harry's retirement on September 23, a luncheon was given in his honor which was attended by a hundred fellow engineers.

Asher Weil has been elected vice-president and treasurer of the Technology Club of New York. The clubhouse is situated at 24 East 39th Street, New York City, and Technology uses the facilities of the club jointly with the Williams Club. Asher says: "Tell the fellows I shall be glad to see any of them at the Club any time they are in town." He is one of the regulars and usually may be found there at lunchtime. At other times he is at his establishment, the Electro Sun Com-

pany at 70 East 45th Street. — GUY C. PETERSON, *Secretary*, 788 Riverside Drive, New York, N.Y. THEODORE H. TAFT, *Assistant Secretary*, Room 3-266, M.I.T., Cambridge, Mass.

1903

Samuel B. Tuell, I, died at his home in New York City on July 3. Tuell came to Technology from New Bedford, where he was born on January 28, 1881. He had been with Stone and Webster and its affiliates ever since graduation. Starting in Boston, he became superintendent of the Terre Haute Traction and Light Company in 1906, manager of the Key West Electric Company in 1909, and manager of the Blackstone Valley Gas and Electric Company in Pawtucket, R.I., in 1911. From 1917-1920 he was executive assistant to the vice-president of the American International Shipbuilding Corporation at the Hog Island Shipyard. He became manager of the Houghton County (Mich.) Electric Company in 1920, and in 1925 Middle West district manager for Stone and Webster, supervising some eight public utilities between Michigan and Texas. Tuell was chosen vice-president of the Engineers Public Service Company in 1926, and he was president of the General Public Service Corporation from 1930-1934. His widow, Pauline Wardlow, and one daughter, Paula, survive him.

Frank C. Reed, VI, was elected a vice-president of the Westinghouse Electric and Manufacturing Company during the past summer. He has been president of the Westinghouse Electric Elevator Company since 1936. He was responsible for many of the large elevator installations throughout the country, one of the most important being the installation of 120 Westinghouse elevators in Rockefeller Center in New York City. In September, 1941, his company was awarded the Navy "E" for excellence in production of war materials. Reed has been with Westinghouse since graduation and was assigned to various positions and departments until 1927, when he was made general sales manager of the Westinghouse Electric Elevator Company in Chicago. Congratulations to him on his recent election.

The sympathy of the Class is extended to George Swett, II, Professor of Machine Design at the Institute, on the loss of his wife, the former Christine Huntley, who died on October 11 at their home in Melrose. — A. H. Hepburn, IV, of the firm of Perry, Shaw and Hepburn, architects, of Boston, volunteered his services in connection with the reconstruction of the Little Red House at Tanglewood, former home of Nathaniel Hawthorne. The National Federation of Music Clubs was sponsoring the rebuilding of this historic home as a gift to the Boston Symphony Orchestra. Hepburn's firm specializes in colonial architecture and was in charge of the restoration of the buildings at Williamsburg, the former colonial capital of Virginia. — D. S. Reynolds, II, Vice-president and chief engineer of the Boston Consolidated Gas Company, was honored by his associates at a special luncheon to celebrate his completion of 40

years with the company. He's been with them ever since graduation. Passing through various positions from draftsman up, he was made chief engineer in 1929; the duties of assistant treasurer were added in 1935; and he became vice-president in 1940. More congratulations!

Plans are being made for our 40-year reunion to be held next year. Owing to the change of Alumni Day from June to January 30, the Class will hold its winter dinner as near the general celebration as will be convenient. There is a possibility that members of the Class may have sons or friends in the graduating Class, and they might like to meet old classmates at this time. We have therefore reserved a room at the University Club for luncheon on Saturday noon, January 30, and we are hoping that many of the Class will attend. Further notices will be sent with reply requests, so that we can know for how many to plan. At that time we shall discuss the possibility of having a week-end celebration in June. Suggestions will be welcome as to time and place. If you cannot be in Boston on January 30, please help us by mailing in your suggestions previous to that date. — FREDERIC A. EUSTIS, *Secretary*, 131 State Street, Boston, Mass. JAMES A. CUSHMAN, *Assistant Secretary*, 441 Stuart Street, Boston, Mass.

1905

Julius A. Furer, XIII-A, formerly a captain, is now Rear Admiral Furer with address 2101 Connecticut Avenue, Northwest, Washington, D.C. Don't expect to find him at home, as he doubtless has business elsewhere. — We learn through the Boston *Herald* that Lieutenant Edwin H. Gilson, son of Alden P. Gilson, II, was killed in action in the Pacific recently. He was a senior at Amherst College when he was called up for active duty last January. Class sympathy goes to Alden.

A letter of last spring from S. H. Ayers, VII, failed to make the news. He wrote: "For several years I was director of research at the Crown Can Company in Philadelphia. Last June, I left Crown to start a research department for the National Can Corporation. I am director of this department, which is located at the Baltimore plant. We have many problems on hand and, as you can imagine, the tin shortage keeps us busy. Finding ways to recover the use of tin in cans and making cans without tin takes much of our time at present. In addition, we have our field research men who work directly with the canners in their plants. This year in particular their problem is to help the canner prevent spoilage in order to increase the food supply."

Saw Sam Shapira, III, at the last meeting of the Alumni Council and he promised details of some important war work his son, Norman '41, is doing, but his secretarial pencil evidently gave out. More later. Sam is now living at 49 Westchester Road, Newton, Mass. Speaking of Newton, I know only what I read in the newspapers, but a recent story told of burglars breaking into the home of Grove Marcy, and of a thief stealing liquor from the cellar of another house owned by a

1905 Continued

Mr. Strickland. I think, however, that our Sid lives in Brookline. Ros Davis announces the marriage of his daughter Anne to Gordon W. Heaton, United States Army, on October 12.

Bill Gouinlock, III, has passed on. The Batavia, N.Y., *Daily News* gives us this account: "William Strachan Gouinlock of 115 East Avenue, Batavia, N.Y., died October 11, 1942 at the Batavia Hospital where he had been a patient since June 21st. Mr. Gouinlock was born in Seaforth, Ontario on November 14, 1881, a son of Dr. and Mrs. William C. Gouinlock. He moved to Warsaw, N.Y. with his family at the age of seven. He attended the Warsaw High School, graduated from the Hill School in 1901 and M.I.T. in 1905. He was a member of the Phi Sigma Kappa fraternity. He lived in Warsaw and was active in the management of the Warsaw Wilkinson Company until 1920, when he moved to Batavia and became President and general Manager of the Climax Corporation and director of the R. E. Chapin Works. He was active in many civic affairs, serving as director of Women's Hospital Association and on the All-Batavia Fund Committee. Mr. Gouinlock was a member of the Damascus Temple of Rochester, a past master of Warsaw Lodge No. 549 F. and A.M., companion in Wyoming Chapter No. 181, Grand Chapter of Royal Arch Masons, member of the Batavia Commandery No. 34 K.T., the Chamber of Commerce, The Batavia Club and several other associations. Survivors include a daughter, Margaret L.; a son, George L., an employee of American Airlines in Syracuse; two brothers and six sisters." — FRED W. GOLDTHWAIT, Secretary, 274 Franklin Street, Boston, Mass. SIDNEY T. STRICKLAND, Assistant Secretary, 137 Newbury Street, Boston, Mass.

1907

Ernest S. Altgelt, I, who was associated with our Class during our junior year, after having received degrees from the Agricultural and Mechanical College of Texas and from the University of Texas, has kindly sent me a complete list of his varied business relationships since 1907. He has had wide experience in many projects in many states, particularly in mining and geology. He is married and has three children. His address is Route 8, Box 252, San Antonio, Texas. — John Kinnear, one of the most successful mining engineers in the country, began working for Nevada Consolidated Copper Corporation in 1910. He was promoted from one position to another until he became general manager in 1927, the position he now holds. During 1942 he has also become vice-president of the Nevada Northern Railway. The home and business of Jack and his wife and son, Junior, M.I.T. '38, who is married and has a daughter, is in McGill, Nev. Jack has been a member of the Nevada State Board of Education since 1930 and its president since 1940; he is a member of the selective service board of White Pine County; he is vice-president of the Nevada area, Boy Scouts of America; a member of

the board of governors of the American Mining Congress; a member of several professional societies; and during last summer was appointed state chairman of the National Industrial Salvage Board.

Ralph Knight, VI, spent the first seven years after graduation in automobile manufacturing as chief engineer for Corbin Motor Vehicle Corporation. Since that time he has been with the United Shoe Machinery Corporation, first at their Beverly, Mass., factory as assistant to the superintendent, then for 17 years as executive in their manufacturing department dealing with the management of the company subsidiaries, and since 1937 in the research division in charge of research work for affiliated companies. His office is at 140 Federal Street, Boston, and his home at 81 Lovett Street, Beverly, Mass. He has a son 20 years old, M.I.T. '45, now in the United States Army Air Corps Reserve, and a 17-year-old daughter. — Since 1922, Dan Loomis, XIII, has been the proprietor of the Dan A. Loomis Company, real estate management, office at 25 Harrison Avenue, Springfield, Mass. His residence is at 14 Riverview Terrace in Springfield, and he has one son, Austin, M.I.T. '37. — Henry Loring has been with the Ferro Concrete Construction Company since 1907 and is now vice-president and manager of the firm at Cincinnati, Ohio. During the past year his concern has designed and constructed several industrial plants for the Army and Navy, for the Defense Plant Corporation, and for other concerns to the value of six or seven million dollars. Henry has two sons who are Tech men — Albert '34, now a captain in the ordnance department of the Army, and Samuel '36, who is an engineer with the Vought-Sikorsky Aircraft Company in Connecticut.

Since 1930, Selden E. Rockwell, II, has been with the United States Bureau of Reclamation at Denver, Colo., and at present he is senior engineer, being in charge of the so-called outlets works section of the dams division, planning outlets, diversions, power plants, and so on. He has had the responsibility for the design of much important work, including the Boulder Dam powerhouses and powerhouses at Wheeler and Norris dams. Selden has a married daughter who lives in San Francisco. His own home is at 1755 Leyden Street, Denver, and his office in the Custom House there. — Early in 1942, Edwin C. Richardson left his position as chief engineer of Champlain Oil Products, Ltd., where he had been since 1933, and went with the Department of Munitions and Supply in Canada. He is the representative of the department at a war plant. His home address is 420 Mount Stephen Avenue, Westmount, Montreal, Canada. This means that Ed is working under our classmate Clarence Howe, who, as you all know, is Minister of Munitions and Supply. It was announced early in November that Clarence was to be Canada's representative on the Combined Production and Resources Board, on which Donald M. Nelson, chairman of the War Production Board, represents the United States, and Captain

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Oliver Lyttleton, British Minister of Production, represents the United Kingdom.

Winsor Soule has been the senior partner of Winsor Soule and John Frederick Murphy, architects, since 1911, with office at 116 East Sola Street, Santa Barbara, Calif. He is a fellow of the American Institute of Architects, has won several national prizes in competitions for residence work, has been president of the Santa Barbara board of park commissioners, and is a member of the board of architectural examiners of the state of California. He has a son 15 years old and a daughter who is 13. His home address is 128 East Pedrogosa Street, Santa Barbara. — Morris A. Stewart was associated with our Class as a postgraduate student in theoretical chemistry, having received his B.S. at the University of New Hampshire in 1903. He was one of the three men to receive a Ph.D. at Technology in 1907, the first year that this degree was awarded at the Institute. From 1908 until the present he has been a patent examiner at the Patent Office in Washington. His home address is 1451 Fairmont Street, Northwest, Washington. He has never married.

Frank Stockwell, who is professor of electrical engineering and dean of the graduate school at Stevens Institute of Technology at Hoboken, N.J., is also consulting engineer and director for the Empire Electric Brake Company of Newark, and he does considerable consulting work in connection with patents. He has served as expert in litigation in several patent cases. — Armen H. Tashjian, IV, who for nearly 30 years was a member of the firm of Walker and Weeks, architects, in Cleveland, Ohio, left them within the past year and is now consulting engineer for the Union Metal Manufacturing Company, Canton, Ohio. This firm is doing war work entirely, and Armen is advising in design and construction of their plant expansion. He had hoped to be at our reunion last June, especially as he has a family cottage at West Harwich on Cape Cod, but the sudden necessity of going to a hospital in Cleveland for an operation prevented. — John Thomas has been with the American Can Company since 1915 and is now manager of manufacture on the Pacific Coast and Hawaii, with headquarters at 111 Sutter Street, San Francisco. His home is at 99 Magellan Avenue in that city. John's older daughter, who holds the degrees of B.A., M.A., and Ph.D. from Stanford University, is married to Professor Naughton of Stanford. The younger daughter is a graduate of the University of California. John's wife died in August of 1941.

Erle Whitney has been with the General Electric Company in various positions and at various places since 1907, and since 1929 he has been assistant district manager with office at 4966 Woodland Avenue, Cleveland, Ohio. He has four sons ranging in age from 15 to nearly 20, and the family home is at 18435 South Moreland Boulevard, Shaker Heights, Ohio. — Eugene Banfield, vice-president

1907 Continued

and works manager of Whitin Machine Works, Whitinsville, Mass., was master of ceremonies at the program of presentation of the Maritime "M" pennant, Victory Fleet Flag, and labor merit badges to the company at colorful outdoor exercises on the afternoon of November 7. This concern was the second in New England and the seventh in the United States to win this honor. Normally a textile machinery manufacturing plant, 111 years old, with 64 departments, about 3,400 machine tools, about 56 acres of floor space, and 4,500 employees, the company is now almost entirely engaged in war effort. Our classmate Phil Walker is maintenance engineer, and the Secretary is executive of the Defense Plant Corporation program at the plant. — According to Charles E. Locke '96, H. J. C. MacDonald of our Class has entered the service of the United States Bureau of Mines as senior mining engineer, mineral production security section, with headquarters at College Park, Md.

Frank Waldo Friend, who was affiliated with our Class for a short time in Course IV, dropped dead of a heart attack at the Lexington, Mass., railroad station on October 17. He had been a construction inspector with Metcalf and Eddy, Boston, and also with the Stone and Webster Engineering Corporation. He leaves his widow and a daughter.

See page 40 of the November 23 issue of *Life* for a picture of Lloyd R. Fredendall, a major general. A motorized force expert, he was one of the commanders in the operations in northern Africa last fall. You will remember him as adjutant of our freshman corps of cadets. — BRYANT NICHOLS, *Secretary*, 23 Leland Road, Whitinsville, Mass. HAROLD S. WONSON, *Assistant Secretary*, Commonwealth Shoe and Leather Company, Whitman, Mass.

1908

The first meeting and dinner of the 1942-1943 season was held at the University Club, Boston, Mass., on November 17. The following were present: Linc Mayo, Cookie, Bill Booth, George Belcher, Lynn Goodman, Toot Ellis, Doc Leslie, A. S. Cohen, Jeff Beede, Lincoln Soule, Sam Hatch, Joe Wattles, Harold Gurney, Frank Towle, Bill Hunter, Henry Sewell, Arthur Skillings, George Freethy, Myron Davis, and Nick Carter. This was one of the largest meetings we have had for some time.

After an excellent dinner, the question of our 35th reunion next June was discussed. It was the consensus of opinion of those present that we most certainly should plan to have a reunion in June, and a reservation has been made at the Oyster Harbor Club, Osterville, Mass., for June 18 to 20, 1943.

Linc Mayo, our genial Treasurer, reported that funds of the Class were a little low to support the preliminary expenses of a reunion. Inasmuch as he has not asked the Class for any dues during the past five years, it was voted that Linc send out a class letter, which you have received by now, asking for dues. If you have not already paid up, please do so

right away, so the reunion committee can do a good job on our 35th reunion.

After the business meeting, Joe Wattles and Myron Davis showed some very fine Kodachrome pictures of fall foliage in the White Mountains — sunsets and flowering shrubs, and so on. There will be another dinner meeting at the University Club on Tuesday, January 12, at 6:30 p.m., when further details of our 35th reunion will be discussed. The reunion committee would be glad to receive any suggestions. If you are unable to attend the dinner, won't you please write to us?

Cookie, our Class Agent for the Alumni Fund, tells us that there are still a good many of the Class who have not as yet made their contribution. To date, both '07 and '09 are doing better than '08. If you haven't sent in your pledge, won't you do it now? Your Secretary would also be very glad if you would send in some news for the record once in a while.

We congratulate Edgar Williams on his election as president of the New York chapter of the American Institute of Architects. — Lynn A. Loomis is now Major Loomis. He is located at Edgewood Arsenal, Edgewood, Md.

We report with regret the death of J. Fred Murray on August 6. — We have the following changes of address to report: Reverend Herbert A. Cassidy, 120 Courtland Avenue, Wellington, Ohio; Matthew Porosky, Hotel LeClaire, Moline, Ill.; and C. Hamilton Preston, 120 East 19th Street, New York, N.Y. — H. LESTON CARTER, *Secretary*, 60 Battery-march, Boston, Mass.

1909

In the November issue of *The Review* were listed the members of '09 who are serving in the armed forces of the United States. In the Army are Kenneth T. Blood, a major general; Clifton C. Carter, Francis C. Crowley, Armin F. Herold, and Rudolph W. Riefkohl — colonels; and Maurice R. Scharff, a major. David P. Marvin is a lieutenant commander in the Coast Guard. Charles Hibbard, also a lieutenant commander and Herbert S. Howard, a rear admiral, are in the Navy. If *The Review* has overlooked anyone who is in the service, please notify one of your Class Secretaries.

In the Boston Sunday *Herald* of October 25 there was a picture of General and Mrs. K. T. Blood viewing the Army-Harvard game. When *The Review* Secretary called Harvard to ask the General's address, a sergeant replied: "Do you know the General? Well, he's one swell guy!" The General wrote as follows: "I was pleasantly surprised to receive your letter. It has been a long time since I have seen you, and I am glad to know that you continue to take such an interest in class affairs at M.I.T. I gather from your job as Review Secretary that you keep in pretty close touch with most of the members of our Class. Unfortunately, due to the pressure of the Army and the constant moving about, I have not been able to keep up with class affairs to any great degree.

"With regard to myself, I was recently promoted to the grade of major general

and am in command of the New England sector of the North Atlantic coastal frontier, which covers all of the New England coast. My headquarters are here in Boston at 150 Causeway Street and I spend a great deal of my time traveling through my command, visiting and inspecting the various elements. I was very much interested to learn what you are doing at the present time and think it is splendid. If I can find the time and opportunity, I shall certainly call on you at Harvard University."

Nothing would be more newsy for the class notes than a few personal statements such as the above from the men in the service, who do honor to '09 by the positions that they have attained and the important work which they are doing. The Secretaries will see that any statements received from you boys in uniform will find their way into *The Review*, so by all means let us hear from you, even if you write only a few words.

Harry Trevithick, V, had his name in the New York papers the other morning. On October 27, he was elected president of the Association of Consulting Chemists and Chemical Engineers at the association's annual meeting. Harry has already served as president of the Oil Chemists' Society, and for many years he has been head of the bureau of chemistry of the New York Produce Exchange. He is an authority on oils and fats. Harry's boy, Douglas, is in Nashville, Tenn., enrolled as an aviation cadet and working for a commission in the Air Corps. Harry was pretty modest in telling about Doug, but the mortality down there sounds like our casualty list in second-year physics in about 1906. Up to now Doug has survived and everything points to his getting his commission.

We are all glad to hear from Henry Spencer. Due to his design and engineering work, the Blanchard Machine Company has for some time been the leading manufacturer of vertical-shaft, rotating-table surface grinders. The company is also a large manufacturer of alternating-current demagnetizers, which demagnetize iron and steel pieces that have become magnetized by having been held on a magnetic chuck or table. Henry wrote as follows: "My daughter, Janet, was married last June to Warrington R. Willis, a graduate of the University of Michigan, who is now an ensign in the Naval Reserve. My oldest son, Kendall, is in his senior year at M.I.T. in Course II. He is in the advanced Reserve Officers Training Corps and expects to be in the service shortly after he is graduated next February 1. My second son, David, is a seaman in the Naval Reserve, and my third son, Richard, is in high school.

"Like nearly all machine tool companies, the Blanchard Machine Company, of which I am treasurer and manager, has been extremely busy making its regular product, surface grinding machines, 100 per cent for war production. Our company was honored with the Army-Navy 'E' award for excellence in production in September of this year. I still call myself a mechanical engineer, but the problems of

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getting labor and material for an increasing schedule of production do not leave as much time as I would like for the engineering side of the business."

Word has been received of the death on August 20 of another classmate, Herbert H. Sutton, VI, at his fishing camp near Mineral Wells, Texas. He was a former student of the University of Texas, as well as of the Institute, and was the son of a former president of the University. He served with the Army's Corps of Engineers in World War I, and after the war was engineer for the head of Insurance Commissioners of Texas. He later conducted the Texas Inspection Bureau at Dallas. Since 1923 he had been engineer-inspector at Dallas for a New York insurance firm. He is survived by a sister, Miss Lillian Sutton, and two nieces, all of Austin, Texas.

For the seventh consecutive term, Tom Desmond was returned to Albany as state senator from his district up the Hudson about his town of Newburgh. During all these Democratic years in New York State, Tom's pluralities have been progressively growing. This year his plurality was 25,000, the biggest of all. Tom has two listings in the phone book that takes in Newburgh, one for his office on Main Street and the other for his home in Balmville, which seems an excellent name to set up against the headlines in the papers these days. Tom reports that his wife Alice is just publishing another new book, which will deal with the life of Martha Washington.

Lester King recently joined Singmaster and Breyer, a firm of chemical engineers who are working on new processes and new plants for war materials. We think of an architect as starting with a piece of ground and the ideas of the owners of the land. The building is built and the tenants and their equipment move in. In Let's firm, the engineers design the machines and set them up in blueprints. Let's job is to follow through, to throw the walls and roofs and windows about the machines, and to see that the weather does not mess things up. Maybe "functional" is the style of architecture that keeps Let so busy just now.

Ken May dropped into the office at Harvard a short time ago to pay a visit to The Review Secretary. Father Time has dealt very gently with Ken, and, aside from a bald spot that he has acquired in recent years and the fact that he may weigh a little more, he looks very little different from the Ken that we knew back in the old days at Boylston Street. We are very glad to hear the following from Ken concerning himself and family: "Mrs. May and I are still living in Newton Highlands, Mass., and are fortunate in having our older daughter, Margaret (Smith '37), who married Henry Harwood (Dartmouth '39), living near by in Waban, after an absence of three years in Morganton, N.C. We have two grandsons, aged two and one-half years and seven months, respectively. Our younger daughter, Elizabeth (Smith '40), was married in March of this year in Albany, Ga., to Lieutenant John E. Dorer, Army

Air Corps (Lehigh '39). The entire family attended the wedding, which was solemnized in the Army chapel at Turner Field. Our son George graduated from Huntington School in June and immediately thereafter entered Amherst in the accelerated course which was initiated there last summer. He is still in college as a member of the Army Enlisted Reserve Corps and is awaiting developments.

"For over 26 years I have been associated with Arthur Perry and Company, Inc., and its predecessor partnership, Investment Bankers, in Boston, and since 1931 I have been a vice-president. At present, the business of merchandising corporate securities is at low ebb, principally due to the increasing need of raising funds for the government to carry on the war effort." — PAUL M. WISWALL, Secretary, 90 Hillside Avenue, Glen Ridge, N.J. CHESTER L. DAWES, Review Secretary, Pierce Hall, Harvard University, Cambridge, Mass. Assistant Secretaries: MAURICE R. SCHARFF, 235 Second Street, Southeast, Washington, D.C.; GEORGE E. WALLIS, 1606 Hinman Avenue, Evanston, Ill.

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Frederick A. Godley, IV, has been associate professor of architecture at Yale University and has served the Institute on the Advisory Committee for the School of Architecture. He has recently been named master of Timothy Dwight College at Yale and has been promoted to a full professorship. Godley, who succeeds James Grafton Rogers, was graduated from Yale in 1908 with a B.A. degree, has been on the Yale faculty since 1931, and is an associate fellow of Trumbull College. He has degrees in Architecture from M.I.T. and the École des Beaux-Arts in Paris, and has been a practicing architect in New York City since 1913.

Your Secretary received the following letter from Lufkin. "Just received my copy of the November Review. I read the '10 notes even before scanning the morning paper to see what our Marines on Guadalcanal were doing to the Japs. Congratulations to the Army and our best wishes to you on your appointment as a major. Our country can depend on your doing your full share, and more, to bring this war to a successful conclusion in the shortest possible time.

"Wish I might send you some class news but my own status is about the same as for some time past. There are no '10 men in Elgin, although there are several Technology men from other classes. Because of the need for tire conservation, we have been limiting our Chicago trips to those demanded by business. Last June, I received word that Alfred F. Kenrick '12 died from pulmonary tuberculosis on May 29 in Castle Point, N.Y. He was a brother of mine in Theta Chi fraternity, Beta Chapter, and we had corresponded somewhat infrequently ever since our days at the Institute. In fact, a letter from him on April 4 expressed his hope that he was gradually improving. Hence, notice of his death was a shock to my wife Mabel and me.

"If I only lived nearer Boston, I would certainly offer to help you with the class notes. Even at this distance, I'll gladly do anything I can, so don't hesitate to call on me if there's anything I can do. Mabel and I still look back on our attendance at Alumni Day ceremonies at Technology and the few days spent in and near Boston as one of the high lights of recent years. It probably won't happen again until after the Germans and the Japs have been taught a good lesson. Best of luck to you and to any other '10 men whom you chance to meet."

A letter from Carl Lovejoy was most welcome. We found a résumé of his work in a semiofficial Government news sheet that tells us more fully about what he has been up to. Three of us who have known and worked with Carl recently can heartily subscribe to the favorable comments in the *Open Letter*. Carl wrote: "I have been a major since early fall. I am still at Westover Field, and it is still expanding. Of course you know I was with the War Department before — have been in Holyoke over four years. It hasn't made much difference being commissioned, but may later. Feel pretty good that an old man like me would get an unlimited commission and maybe get a chance to build something closer to the scenes of action. I have not seen Samson K. Cohen since 1910, but I received a drawing the other day signed Lieutenant Colonel S. K. Cohen. Am enclosing the write-up our district safety magazine printed when I went into uniform. You might want to use some of it, but please don't quote the apple sauce."

The quotation in the *Open Letter* about Carl read as follows: "Major Lovejoy, a native of Boston, was born in that city June 22, 1889. His early education completed there he entered Massachusetts Institute of Technology. Graduating in the Class of 1910, with a degree in Engineering, the Major's achievement record covers vast areas and projects from which he acquired wide experience in all fields of Civil Engineering. During summer vacations from College, and in his first year after graduation, he worked for the Massachusetts State Highway Department. The territory covered in Western Massachusetts included Huntington, Greenfield, Deerfield and Northampton. It was, therefore, with much pleasure he subsequently returned, in his present capacity, to the locale of his earlier pursuits. In his early years of practice, Major Lovejoy served with the Navy Department on Harbor Construction. He next turned his attention to the construction problems of the New York subway system following which he joined the Pittsburgh Testing Laboratory, a nationally recognized firm of testing engineers. While a member of this outfit his activities brought him to Cleveland, Ohio, Little Rock, Ark., and numerous other sections of the United States.

"In 1925, the Major with a group of prominent engineers and scientists, combined to form the Forest City Testing Laboratory. Special recognition was awarded the group in the Middle West

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for their work in testing street paving, and as a testing laboratory for various other types of engineering construction. In 1934 the U. S. Army Engineers claimed Major Lovejoy as resident engineer on the Mohawk Dam Project of the Muskingham Valley Watershed Flood Protection System, Zanesville, Ohio District. Following completion of this system of reservoirs, he was transferred to the Providence District and assigned to the Holyoke area where he directed construction of the Holyoke Sea Wall and the Northampton Flood Control Project including the Mill River Diversion, the Birch Hill Dam, and Surry Mt. Dam. In December, 1940, he was appointed to Westover Field where he has since been in charge of construction on that project.

"Major Lovejoy received his present commission August 4, 1942. He resides in Holyoke with his wife and his two sons, now serving in the armed forces. . . . Howard, a lieutenant in the field artillery and Roger, who is about to enter the Coast Guard. Described by intimates as a 'typical Yankee,' the Major is representative of the officer whose efficiency and conscientious discharge of duty places the Army Engineer Corps high in the esteem of the American people. They are justly proud of such men and their consistently magnificent record in the present world conflict."

The Boston Herald of Wednesday, October 7, had a news article on the work of John M. Bierer, with several pictures which show him to be hale and hearty and doing some good work in the improvement of reclaimed rubber products and recapping of tires. More power to him in every way. The article is too long to be included *in toto*, especially as many may have already read it, but the following excerpts are of special interest to us: "A Cambridge concern that never made an automobile tire in its 74 years of existence, and probably never will, has come forward in the nation's desperate rubber shortage with a new reclaiming process that will double the life of tires recapped by present reclaiming methods. The new process, made possible by the discovery of a new chemical formula, is conceded to be the greatest single contribution toward solving the wartime crude rubber scarcity. It can be made far cheaper than synthetic rubber can be made, and it can be produced and reproduced down to the nation's last pound of scrap rubber. Unlike most commonly accepted methods of processing reclaimed rubber for tire-recapping, not one ounce of new rubber is required under the new formula."

"This vital 'shot-in-the-arm' to America's crying need for rubber with which to win the war is the result of nearly two years of research in the laboratories of the Boston Woven Hose & Rubber Company, at 29 Hampshire Street, Cambridge. John M. Bierer of Newton, big and aggressive factory manager and a director of the company, argued yesterday that the new process was far from the complete solution of the rubber shortage, but he was equally insistent that it was 'extremely promising.' Today, traveling 35

miles an hour on the best reclaimed rubber available, a motorist can go approximately 10,000 miles before his recapped tires wear out. Most motorists, in fact, are satisfied if their re-caps go 5000 miles. With the new process, traveling at the same speed on recapped tires, the motorist can do 18,000 miles or more."

The article says that the new process gives a reclaimed rubber of higher tensile strength than currently used processes do, and gives recapped tires of considerably greater mileage. The article closes with the following: "'We had no idea that the Japanese would gain control of the world's crude rubber supply,' said Bierer, 'but we started research early in 1941 just in case what has happened would happen.' Bierer, who was graduated from M.I.T. in 1910, went to work as a cub chemist at the Cambridge plant a year later. Ingredients in the secret chemical formula are known only to company executives, the War Production Board and to the larger rubber reclaiming firms of the nation. As far as is known, Hitler has to make the best of his rubber shortage by use of the reclaiming method that has existed since the late 19th century, which . . . originated at the same plant in Cambridge."

A letter from the Advisory Council on Athletics states the need of contributions to the Alumni Athletic Fund. The letter showed that 1910 contributed \$20 out of a total of \$508.

We have the following new addresses: Benjamin S. Hirschfeld, 3647 Webster Street, San Francisco, Calif.; Harold R. Perry, 424 Walnut Street, Carlisle, Pa.; Frank A. Scott, White Spot Auto Camp, Walnut Creek, Calif.; Lieutenant Colonel Van Court Warren, Corps of Engineers, Port Engineer, Seattle Port of Embarkation, Seattle, Wash.; Major Herbert S. Cleverdon, United States Engineer Office, Post Office Box 1731, Portland, Maine; Frederick A. Downey, 34 Summer Street, Hyde Park, Mass.; and Joseph P. Maxfield, 2122 Myrtle Drive, Duke Station, Durham, N.C. — HERBERT S. CLEVERDON, Secretary, United States Engineer Office, Post Office Box 1731, Portland, Maine.

1911

Now George C. Kenney, United States Army, is a lieutenant general! We salute you, Heinie, as we thrill at your splendid work in charge of the Air Forces in the Southwest Pacific area! Here's what a Chicago columnist said this fall in his feature "Who's News Today?": "There is no record that Lt-Gen. George C. Kenney was ever a pool-player, but he believes in calling his shots. The new commander of the Allied Air Forces in the Southwest Pacific says: 'My targets are planes and ships.' He elaborates this idea with the precision of a technician — which is what he is — and makes it clear this kind of war will be won by picking the right targets and hitting them. Although he could sport a chest-row of war medals, he's not West Point, but M.I.T. 1911, one of many new reminders that this is a technical war, and

in the future West Pointers may be chanting logarithms instead of 'Benny Havens' or 'Fight On, Army Teams.' The Kennys' 19-year-old son, William R., is a premedical student at the University of Cincinnati. The family home is still in Dayton, Ohio.

This year's "Seven Come Eleven" party on Saturday evening, November 7, in the Silver Room at Walker Memorial, was one of most enjoyable class dinners we've ever had at the Institute, with 17 present. Particularly pleasing was the "return home" for the event of Carl G. Richmond, I, a lieutenant colonel, who was our principal speaker in the "talk-around" after dinner.

Carl is now attached to the Office of Provost Marshal in Washington and is in charge of the fire protection service. He happened to be in the First Corps Area in early November and learned of the dinner from O. W. Stewart and so stayed over for it. Carl spoke most interestingly of the type work he and his staff engineers were doing to protect war industries not only from fire but from sabotage of other forms, and he said that he was recently honored by being chosen a member of the resources protection board, a branch of the War Production Board. When a group of South American mining men were in Washington for two weeks' intensive instruction on plant protection in late October, Carl was scheduled to lecture to them. As he entered the room one of them jumped up and greeted him as "Carl" on sight. It was Franklin Osborn, III, Andes Copper Mining Company executive, who is stationed at Potrerillos, Chile. "Frank knows copper," Carl said, "and how to get it for the use of the United Nations. His family — wife and five children — live principally in Vineland, N.J. This was Frank's first trip to the States in two years. Except for two years during World War I, when he ran an asbestos mine in Quebec, Osborn has been in copper mining operations in Chile. He has quite a story to tell. Just now of particular interest is his capacity of public relations officer between his company (Anaconda) and the Chilean officers."

We were very happy to have two other classmates present for the first time in several years: John Alter, IV, of Lawrence, and Hal Jenks, VI, of Newtonville. Completing the picture were: Ernest Batty, II; Obie Clark, II; Marshall Comstock, VI; A. V. deForest, XIII; Dennie Denison, VI; Tom Haines, II; Jack Herlihy, II; Charlie Linehan, I; Roger Loud, VI; Charlie McManus, I; Fat Merrill, I; Morris Omansky, V; O. W. Stewart, I; and Ted Van Tassel, X, who is a captain.

Following a disastrous office building fire in Lawrence about a year ago in which his architectural office and equipment were destroyed, John Alter told us he had given up his own practice, keeping only his teaching assignment at the Boston Architectural Club. He is now affiliated with John W. Bath and Sons, machinery manufacturers. Our other pal we hadn't seen for some time, Hal Jenks, reported that he is in the engineering department of the New England Gas and Electric

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Association, Cambridge. He is a grandfather, as his oldest daughter, whose husband makes lenses for range finders, has a year-old daughter.

In the "talkaround" it developed that there are quite a few sons of classmates in the service from this area. O. W. Stewart's three sons are all in: Oz '39, the oldest, is a battery commander with the air-born anti-aircraft; Pearson, the second, is an ensign in the Navy; and David, the youngest, just reported to the Army. John Herlihy's two boys are in. Jack, the older, is an Army lieutenant, assigned to a bombing squadron as engineering officer; and Dick is an Army air cadet, just completing his basic training. O. B. Denison, Jr., an ensign in the Navy, is flying a patrol bomber "somewhere in the South Atlantic."

Ernest Batty told us his work with Lincoln Stores is now almost entirely maintenance, while Clarkie said his Nelson Cement Stone Company is headed for its best financial year since the big depression. Marsh Comstock said he believed he and his wife had some sort of a record — two grandchildren this year, both their married daughters having had daughters in 1942. Their son, just turned 18, has entered Tufts College and is in the Navy unit there.

Our own Professor deForest, in charge of dynamic strength of metals courses in the Department of Mechanical Engineering, reported he was "on the same old job, only more so." He has just completed development of a new use for his "Magnaflux," which is now being used for detecting flaws in nonmagnetic metals. He had it on exhibition at the recent steel show in Cleveland and already demand far exceeds the supply he can produce.

Haines, Herlihy, and Loud — the Edison triplets — told of the wartime phases of public utility operation. Tom said the oldest Haines girl is now busy on a government job in Washington, while her younger sister is taking a secretarial course at Pine Manor Junior College. Jack said he was now on his second year as a member of the board of trustees of the Medford Hospital, while Uncle Roger said he had been in charge of a most successful United War Fund Drive in Weymouth, where his wife is most active in the work of the Red Cross. His big son, Warren '42, who was graduated with honors from the Institute, is now on a teaching fellowship there, and his younger son is still in preparatory school.

A couple of Charlies were there — Linehan and McManus. The former said he is still a teacher at Rindge Technical School in Cambridge. He is no longer coaching football, but is continuing to do some scouting for Harvard. His daughter is now nine. The McManus report revealed he had just completed a road job in Marblehead, and as a side light he said he had two nephews now at Fort Devens, and when he visited them recently he was delighted to find how fine conditions were there and how pleased the boys were.

Noticeably thinner, Fat Merrill said he had been busy for several months on a

synthetic rubber process for insulating the inside of black steel pipe for high pressure hot gases. His duties as president of the Milton Hospital occupy much of his time, and he gave us a fine behind-the-scenes picture of hospital operation in wartime. The reference to synthetic rubber brought from our chemist, Morris Omansky, this statement: "Synthetic rubber is wishful thinking. What is being done is to produce something which has approximately the characteristics of rubber." His daughter, Frieda, who is studying architecture, is now a sophomore at Technology.

O. W. Stewart said he saw a deForest Magnaflux machine in the Rolls Royce plant at Detroit recently. He added that he wishes people could follow him in some of his plant inspections and see how wonderfully our industrial war machine is really functioning. Along this same line, Captain Van Tassel of the Chemical Warfare Service, currently administrative officer at the Fisk Tire Plant in Chicopee Falls, said the production of gas masks there is phenomenal in its scope and efficiency. He told of running into Ray Lord's son, now a senior at M.I.T., when a trio of students in Business and Engineering Administration got permission to visit the plant in quest of thesis data. "Young Lord seemed to be a chip off the old block," Van said.

John Bowman, XI, in declining the dinner said he was "now a structural engineer at the naval advance base depot in Davisville, R.I., with G. A. Fuller — Merritt Chapman Scott Corporation, and living at 101 Wesleyan Avenue, Providence, R.I." Bog Stevens, IV, also was prevented from attending by a previous engagement. He wrote he was still with Stone and Webster. He also said: "As a deacon, I had the honor to welcome Dr. and Mrs. Karl T. Compton as new members of the Mount Vernon Church of Boston." And here is a fine tag to this 7-11 story, written by Frank Wood, II, who couldn't come up from Beverly for the dinner. He wrote: "Better put the money into defense stamps. I mean it, really."

"Costs that count are not so much a matter of dollars and cents, of stocks and bonds, of land and buildings, as they are matters of hope and faith and courage," Carl Ell, XI, President of Northeastern University told 100 school of business freshmen at a welcome party in early October. "Weigh in your own mind," he concluded, "with what price you have bought your present state of intelligence and knowledge, your present state of experience and skill." Incidentally, announcement has just been made by Carl that next year girls will be admitted for the first time to the Back Bay technical institution.

Fred Daniels told me recently he had seen our Course VI mate, Cal Eldred, in Lowell recently. Cal is now associated with John A. Stevens, Inc., consulting engineers. He and his family still live in Dedham, however.

Just received a fine, newsy letter from Hal Robinson, I, a captain in the Army

Air Corps, now stationed at Army Air Base, Pocatello, Idaho. "Left Pendleton, Ore., on September 1," he writes, "when the Fourth Air Service Command took over. Went to Pleasant Grove, Utah, with my outfit for three weeks and was then sent on detached service to Salt Lake City, where I was moving a Civilian Conservation Corps camp from Big Cottonwood Canyon to Salt Lake. On October 19, my outfit moved here and I accompanied them. I'm glad to say I'm not club officer here but am a member of the staff of the commanding officer and known as S-4. This is one of the four positions on the C.O.'s staff and as such is filled with plenty of headaches, especially on a new base.

"My wife went back to Worcester on October 1 and expects to join me again, provided I can find living quarters — a darn tough job! I still prefer New England to the wild and woolly West. We've had several snow squalls and the surrounding mountains are all covered with snow. My big son, Henry, is in Africa by now and is seeing some of the action he was looking for. Remember me to all our classmates."

Oh, by the way, at the 7-11 dinner someone asked what had become of Clarence Dow, I, who is generally at our dinners, and no one knew the answer. Curiously, less than a week later a fine unsolicited letter came from Clarence, bringing us up to date on him thus: "Since Uncle Sam seemed determined to put all auto dealers out of business eventually, I fooled him and just wrapped all my cars up in paper and closed the doors last July. My next move was a job, and how. I was made senior inspector of ships (mechanical) for the Bureau of Ships, with headquarters in Quincy. I am now stationed in Rhode Island most of the time, most often at the Herreshoff Manufacturing Company in Bristol.

"An item of further importance occurred July 11, when I was graduated into the grandfather class — six and one-half pound Stephen Turner Dow, a son of my son, appearing on the scene. I had intended to see you on November 7, but Uncle Sam insisted in having a 'board trial' of a sub-chaser at one of my plants, so I couldn't get away."

Thoughtful as always, Charlie Locke '96 sent me a clipping from a recent issue of the *Nevada State Journal* containing an intimate shot of Jim Greenan, III, with a caption: "James O. Greenan, who hunted tin in Malaya, found it in Nevada." It seems Jim and his friend, George W. Kerr, a geologist, acquired the old Majuba Hill copper mine in north-central Pershing County, Nev., and in developing the copper deposit found ore containing considerable tin. "This could not be anything but a small deposit," Charlie wrote, "so that we shouldn't get excited about it, but it will add a bit to our scarce supply of tin in this country."

In the Boston *Herald* recently appeared a feature story on the admirable and effective work of the Coast Guard Auxiliary, which is directed by Roy MacPherson, II, a lieutenant-commander. As former

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commodore of the Quincy Yacht Club, Roy became very familiar with yachts and yachtsmen in Boston Harbor. This has been of inestimable value to the Coast Guard in developing this important auxiliary work.

Joe Harrington, VI, transferred from Chicago back to New York by Standard Alcohol Company, is again making his home in Westchester. The address for Joe and Rose is now 165 West Broadway Drive, Larchmont, N.Y. — From the Alumni Office we learn that Beardsley Lawrence, I, long associated with T. Stuart and Son Company, contractors in Boston, is now with Utility Fabrics Company, Inc., 2 Broadway, New York City.

Mid-November standings in the current Alumni Fund drive are just at hand, and there's that figure 11 again: 1911 has 111 per cent of its quota of contributors, and what tickles me the most is the fact that less than ten classmates remain who have subscribed to either or both of the first two funds, but have not yet sent in their card for 1942-1943.

From Dennie and Jack to you all it's "Victorious New Year!" — We hope to see you at Alumni Day — Saturday, January 30 — at the Institute in the afternoon and at the Hotel Statler in the evening. — ORVILLE B. DENISON, *Secretary*, Chamber of Commerce, Worcester, Mass. JOHN A. HERLIHY, *Assistant Secretary*, 588 Riverside Avenue, Medford, Mass.

1912

It is with deepest sorrow that we report the death of Carl H. Morrill, XI, of Greenfield, Mass, a captain in the Corps of Engineers, on October 13; and the death of Alfred F. Kenrick, II, in Deposit, N.Y., on May 29.

We have just received the following report of the Alumni Fund: Up to November 15, the Class had contributed \$1,934, or 65 per cent of our quota. We have 108 contributors, or 83 per cent of our contributor quota. It is hoped that we can materially increase this percentage before the year ends, as some classes have already gone over the top in both the amount contributed and the number of contributors.

R. W. Chandler, a major, is now located at 700 Frank Nelson Building, Birmingham, Ala. James A. Tillinghast has rejoined the services as a lieutenant in the Naval Reserve and may be addressed at Wakefield, R.I. We are pleased to note that Richard C. Stickney, 772 Hillyer Avenue, Macon, Ga., now rates a colonelcy, having received his promotion recently.

Wilson R. Buie, a major, may be addressed at Army Post Office 864, care of Postmaster, New York City. Jerome C. Hunsaker has recently been appointed to the committee of aircraft technical development under the War Production Board, in addition to his other war duties. — E. B. Moore is a lieutenant colonel in charge of the Army War Show now traveling the country. The duties of Colonel Moore and his men are not limited to maintaining the equipment for the

show, as they must have everything ready at a moment's notice to go into battle on one of our far-flung fronts, for the more than 2,000 members of the show make up a complete fighting unit.

David Dasso, Minister of Finance for Peru, recently made a radio speech urging the promotion of closer contact with our South American neighbors. — John L. Bray, head of the school of mechanical and metallurgical engineering at Purdue University, has been appointed to the technical committee for individual awards and is contributing valuable suggestions for increasing production of the War Production Board. — Elliott W. Tarr writes from Box 33, Rosneath, Dumbartonshire, Scotland, that he is still engaged in altering the topography of the Scottish Highlands, and, as yet, sees no immediate prospect of his return to the States. He would sure be glad to hear from any of you.

Paul M. Tyler, III, has resigned as chief of the nonmetal economics division of the United States Bureau of Mines to join the Board of Economic Warfare. The Army-Navy Production Award has recently been made to the Berium Reduction Corporation, under which name James B. Pierce, Jr., X, operates.

Dave McGrath has recently undergone a serious stomach operation, but he is recovering rapidly and is now at the office a short time each day. He contributes the following: "Perhaps the silver-lining-in-every-cloud idea has some basis in fact. Maybe there's even some benefit in the entire absence of class notes in one or two issues of *The Review*. Anyhow, the almost complete vacuum of '12 news seems to have stirred one of our classmates to action. Excerpts of a letter from Charles A. Cary, I, make a welcome contribution to this column."

Cary's letter read as follows: "In reviewing the contents of a bypass file, I uncovered some ancient correspondence from you, which apparently failed to raise any response from me. From the looks of the class notes in *The Review* it would appear that the members of '12 are too engrossed in their activities these days to support you and Shep to any noticeable extent. Maybe the dearth of contributions results in so much publicity for the occasional contributor that we are inclined to be bashful.

"I moved from New York to Wilmington in May, 1937, and have had occasion to be in New York very rarely since that date. That explains my disappearance from any New York alumni activities for the past five years. My home address is Talley Road, Rural Delivery 2, Wilmington, Del., and my office address is Room 4514, Nemours Building, Wilmington, Del. If you ever have occasion to be in this neighborhood, I should certainly enjoy the opportunity of seeing you. Outside of an occasional letter or two from Page Golsan, I have had no contact with any of our classmates.

"Personal items are rather inconsequential these days. I am in the Nylon end of the Du Pont organization and, as you probably know, that product is now a 100 per cent military proposition, with

the usual ramifications of Washington and service contacts. My family is pretty well grown up and settled. My oldest boy, George, graduated from M.I.T. in the Course in Naval Architecture and Marine Engineering in 1937, and has been busy helping build ships for the Merchant Marine and the Navy. He was at Newport News for four years and is now at the Bath Iron Works. My daughter is married to a Navy lieutenant and is living in Washington at the present time. The youngest boy is a freshman at Bowdoin and is trying to get lined up for the Navy Reserve. After such a long silence, I expect this is about all you can stand." — Your Secretaries would like to register the point that they could easily stand a lot more like that. — FREDERICK J. SHEPARD, JR., *Secretary*, 125 Walnut Street, Watertown, Mass. DAVID J. McGRATH, *Assistant Secretary*, McGraw-Hill Publishing Company, Inc., 330 West 42d Street, New York, N.Y.

1913

James V. Young, II, is master general of ordnance for the Dominion of Canada, with the rank of major general. Bill's two oldest boys are in service abroad — one a major, and the other a captain, having recently graduated from the Royal Military College in Canada. Bill's part in Britain's war effort has been extraordinary. He was among the first to see action in World War I, and was wounded at the outset of that war.

Thank you, Dave Stern, V, for the following letter of November 4: "Seeing the class notes in the November issue of *The Review* reminded me that I ought to notify you of my change in addresses. Please change my business address from National Can Corporation, 71 Locust Street, Boston, Mass., to Stern Can Company, Inc., 183 Orleans Street, East Boston, Mass.; and my home address from 29 Cotton Street, Newton, to 158 St. Paul Street, Brookline, Mass.

"You may be interested to know that I am a grandfather, my daughter Hannah having two very lovely children, a girl and a boy. Strange as it may seem, I do not feel the least bit antiquated. My son Stuart Lawrence graduated from Tufts in 1941 and is now an army aviation cadet. I shall try to attend the January festivities." — Would that others in the Class would be so reminded!

From the Alumni Office came the sad news of the death on February 21 of Guy K. Calhoun, VI, a commander.

Here are some address changes: Captain Hugh P. Leclair, XIII, Holly Hill, Friendship, Md.; Malcolm W. Leonard, VI, Public Service Electric and Gas Company, Testing Laboratory, 200 Boyden Avenue, Maplewood, N.J.; Frank H. Mahoney, V, 10 Adanac Road, Milton, Mass.; Colonel Alan H. Means, XII, 288 Chorro Street, San Luis Obispo, Calif.; John Turner, II, Shaer and Turner Engineering Company, 88 Broad Street, Boston, Mass.; Harry D. Peck, II, 1124 Hospital Trust Building, Providence, R.I.; Francis S. Curtis, VII, Ashfield, Mass.; Major General Fulton Q. C. Gardner, VI,

1913 Continued

Headquarters 4th Antiaircraft Command, 1950 Broadway, Oakland, Calif.; William E. Herron, II, 1128 South Florida Avenue, Lakeland, Fla.; Dr. Arthur W. Kenney, X, M.I.T., Room 8-203, Cambridge, Mass. — FREDERICK D. MURDOCK, *Secretary*, Murdock Webbing Company, Box 784, Pawtucket, R.I.

1914

After spending many years on the Pacific Coast in the bay region of San Francisco, with his headquarters at Berkeley, Charles G. Maier has been appointed to the supervisory staff of the Battelle Memorial Institute in Columbus, Ohio. Maier is to direct and correlate an enlarged program of fundamental research.

Professor Dean Fales continues his talks on automotive design. One of his most recent talks was on November 30 before the Syracuse section of the Society of Automotive Engineers and the Technology Club of Syracuse. — Another '14 man who has been busy with automotive affairs is Alfred Devine, Assistant Registrar of Motor Vehicles for Massachusetts. Al has been a specialist on headlights, and the dimout regulations have imposed many technical problems on him, as he has had to co-ordinate suitable road illumination with no sky glow.

The number of classmates who have contributed to the Alumni Fund is slowly creeping up, and we are beginning to make a pretty good showing. The dollar contribution is also increasing, but this is somewhat lower than it should be for our Class. If '15 did trim us on Field Day, there is no reason that they should continue to do so in such matters as finance. At present they are quite a bit out ahead of us. The average contribution expected of a Class out the number of years that we have been is approximately \$25. This gives only \$20 to the Institute, because the first \$5 of a contribution goes for The Review subscription and toward the expenses of the Alumni Association and the Fund. This contribution is a direct credit against your income for the Federal income tax. Perhaps there are some who have not fully understood the contribution expected and would therefore like to increase the amount of their current subscription to bring it up to the average. — H. B. RICHMOND, *Secretary*, General Radio Company, 30 State Street, Cambridge, Mass. CHARLES P. FISKE, *Assistant Secretary*, 1775 Broadway, New York, N.Y.

1915

As of November 13, our totals on the Alumni Fund were as follows: 134 contributors, \$2,382. This is 76 per cent of our contributor quota and 80 per cent of our money quota. Our average contribution is \$17.80. This is really good, but not good enough for the fine old Class of '15. So all of you who gave last year but have not given this year, please send in your check on my final appeal.

From "the little man who wasn't there," little Andy, comes: "This being my birthday as well as Father's Day, I'll scribble off half a page. I should like to

see the class notes. I have kept pretty busy all the time and have only been over to the Brooklyn Navy Yard four or five times since I last wrote to you. I am running the steel assembly yard over in Jersey City. All day long the Statue of Liberty has her back to us. Bill Smith, a captain, is no longer connected directly with our work. I believe he moved up the ladder. W. M. Angas '17, also a captain, is now in Bill's place. Our part of the work should be cleaned up in August, and then maybe I'll go back to the yard. But then again I may stay in Jersey, as our outfit is going to build some boats for the Navy at the same location. I would like to see you and Pirate Rooney sometime, but don't know when I'll be up that way again. Remember us to everybody."

A radically different letter, but typical of the friendly spirit of my classmates, is the following from fat and lazy Henry Sheils: "You are positively the toughest person that I know of to try to reach on the phone. First your line is busy, and in five minutes there is no answer. What do you do with yourself anyway? I had a swell program laid out for you yesterday, but as usual you couldn't be reached. 'Twas Father's Day with special chow at my house. You weren't around, so what did I do? I gave it to the dog. I'm serving notice on you that I am sponsoring a movement to get a new Secretary for the Class — someone who will get the gang together once in a while. As for you, phooey. Thank you much for sending Marjorie that nice handkerchief for a graduation present. She did very well, graduating with honors and with special honors in harmonic analysis. I'll show you her diploma with all those honors on it." — This is typical of Course I, so the less said about this letter, the better.

Jerry Coldwell was recently elected a vice-president of Ford, Bacon and Davis, Inc., in New York City. He has been with this firm for many years, in charge of industrial and organization work for many clients all over the country. Congratulations and best wishes to our ever loyal Jerry!

Here's a chap we haven't heard from in a long while. Enclosing a generous check to the Alumni Fund, Howard M. Sawyer of the H. M. Sawyer and Sons Company, Cambridge, writes: "This is in reply to your letter of October 8. Last year five of us from our company took the industrial defense course given at Technology in co-operation with the Cambridge Chamber of Commerce, and I thought that our company should recognize the Institute's co-operation. We have received some splendid assistance from the technical laboratory of the Chemical Warfare Service, which is located at Tech."

Michael R. D'Orsi '34, an architect, writes: "Fritz Blomquist '15 is the technical assistant and supervisor of the civil engineering personnel of the repairs, utilities, and maintenance department of the First Service Command."

From Charlie Malone in Springdale, Conn., comes: "You do keep up with things! How did you hear about my resignation from the Norma Hoffmann Bear-

ings Corporation? You must have a clipping bureau following the activity of all of the fellows. Am now on my own, since I have an interest in the Hopewood Manufacturing Company. We have been quite successful and are doing a lot of war work. If you are ever down Stamford way, drop in to see our little place."

George W. Simons, Jr., is director of the city transportation system in Jacksonville, Fla., and he was recently quoted in the newspapers in a talk he gave to a civic club on wartime transportation. — Francis E. Buckley, 690 Dudley Street, Boston, with a generous check for class dues, wrote that he feels sure that if all classmates feel as he does, they would pay class dues and support the Alumni Fund. In fact, he even offered to pay any back bills he had skipped, which I think is the height of sincere interest.

This is it! The Class may still have a governor in its ranks. On a pretty blue blotter embellished with a fine picture of Speed Swift, Herb announces his candidacy for Republican senator of the Seventh District. He's been a member of the New Hampshire Legislature for the last two years, and promises if elected to represent his district well. Good luck, Speedy, and keep on going!

Remember to give to the Alumni Fund. First, you'll help Technology, and then you "help Azel." — AZEL W. MACK, *Secretary*, 40 St. Paul Street, Brookline, Mass.

1916

Raymond W. Cushman, XIII, is now at Clearwater, Fla., at Basic Training Center 6, Army Air Forces. He has the rank of major. Frank G. Darlington, VI, has moved to Sewickley, Pa. Byron Jones, XIII, has been promoted to the rank of colonel and is now at Fort Bliss, Texas. John A. Kelley, I, of Medford, Mass. is now a lieutenant in the Army, stationed at Camp Crowder, Neosho, Mo.

Bill Brown writes from Cleveland that he reported for active duty with the Navy on November 15. He has the rank of commander, and classmates will find him in Washington by looking him up as Commander Willard C. Brown (SC), United States Naval Reserve, care of Bureau of Supplies and Accounts, Navy Department, Washington, D.C. — Tom Berrigan has signed up as a lieutenant commander in the Civil Engineer Corps of the Navy. — James F. C. Hyde, I, recently a lieutenant colonel at San Juan, Puerto Rico, is now in Washington and has been promoted to the rank of brigadier general. Stewart Keith, I, has moved to 706 Grove Street, Haddonfield, N.J. Herb Mendelson is a major in the Chemical Warfare Service at Edgewood, Md.

Dave Patten is now a lieutenant commander and should be looked up at Room K-1008, Office of the Chief of Naval Operations, Washington, D.C. Wallace E. Wentworth, XIV, is now in Washington at 540 Pentagon Building. I had a note from Henry Shepard recently. He is senior naval adviser at the War Production Board, 17 Court Street, Boston, Mass. Busy as he doubtless must be, he had time

1916 Continued

to look up Charlie McCarthy in Bridgeport and Jeff Gfroerer in New Haven. Jeff's Sound Scriber is apparently making a big hit and finding a wide use in government circles.

Contributions to the M.I.T. Alumni Fund should be mailed to Room 3-219, M.I.T., Cambridge. Checks should be made payable to the M.I.T. Alumni Fund. For those of you who were interested in athletics, an appeal is again being made this year for support of the Alumni Athletic Fund at the Institute. — JAMES A. BURBANK, *Secretary*, The Travelers Insurance Company, Hartford, Conn. STEVEN R. BERKE, *Associate Secretary*, Coleman Brothers Corporation, 245 State Street, Boston, Mass.

1917

As these notes are being written on November 13, a report from the Alumni Fund indicates that the Class has on this date met 82 per cent of its quota of contributors for the 1942-1943 Fund. As the present figure is not far below the final percentage attained for the 1941-1942 Fund, it is to be hoped that we shall reach the 100 per cent goal this year.

Front pages recently have noted the award of the Navy Cross to Forrest P. Sherman, a captain in the United States Navy, who was in command of the U.S.S. *Wasp*, sunk in the Solomons last September. Forrest was a year with us before he entered the United States Naval Academy, from which he was graduated in 1917. In World War I, he served in the Mediterranean and at Brest, France; and in 1923 he completed his flight training at Pensacola. Subsequently he served aboard the *Lexington*, the *Saratoga*, and the *Ranger*. In 1940, he was the United States representative in naval aviation on the United States-Canadian Permanent Joint Board of Defense; he was a member of the Army-Navy Joint Planning Committee, Navy Department Research Council; and was the United States naval aviation adviser at the Atlantic Conference.

Howard Stewart's daughter, Marion, was recently married to Earl W. Shaw, a lieutenant, junior grade, in the Naval Reserve. Stewart's home address is 5 Germain Street, Worcester.

Malcolm Brock is chief chemist of Namco, Inc., Nutley, N.J. The company develops and manufactures various sealing compounds for industrial uses, and was recently the subject of an article in *Modern Industry*. The article was illustrated with photographs of Malcolm in action.

From the Boston *Globe* of one fine November day: "Lucius T. Hill of Brookline has been appointed assistant executive manager of the Victory Fund Committee for the 1st Federal Reserve District. . ."

— RAYMOND STEVENS, *Secretary*, 30 Charles River Road, Cambridge, Mass. PHILIP E. HULBURD, *Assistant Secretary*, Phillips Exeter Academy, Exeter, N.H.

1919

Your Secretary has received a letter from the M.I.T. Advisory Council on Athletics regarding the Alumni Athletic

Fund. For the coming year they anticipate that they will need between \$800 and \$1,000 for financing undergraduate athletics for the year 1942-1943. The Class has been asked to contribute to this fund.

As of November 13, the M.I.T. Alumni Fund shows 7,628 contributors with an average of \$10.90 per contributor as against 6,863 contributors with an average of \$9.60 per contributor for this time last year. The Class up to November 13 showed 112 contributors, or 67 per cent of our quota of 166, as compared with final results for the preceding year of 117 contributors. We also show a total of \$1,080 in contributions from our Class, out of a quota of \$2,985, or 36 per cent of our quota, as compared with \$983.00 as our final figure for last year. Your Secretary wishes to compliment the Class on its showing this year, and as there is still some time left before the final closing, he hopes that the Class will respond to the final appeals to further improve our showing.

Blake Darling writes from 315 Montgomery Street, San Francisco: "Sorry, the chances of my attendance are very remote due to the distance. I think the reunion should be very simple and 'mixed.' No doubt the most satisfactory present is unrestricted cash."

H. W. Denison writes from Stoughton, Mass.: "When you speak of our 25th reunion, I feel like a real oldster. Hope to see the old crowd on that occasion. In the meanwhile, we have a war to win." He concurs with the present to the Institute, suggests Boston or thereabouts for the reunion, and prefers it to be stag.

Henry S. Derby, a lieutenant colonel at the headquarters of an artillery brigade, Ft. Ethan Allen, Vt., writes: "Good to see '19 news in the November Review. Hadn't heard of Ken Davidson or Ev Doten for a long time. I'm back at home station again — Fort Ethan Allen. I was promoted to the rank of lieutenant colonel on September 2. Am still assigned as operations and training officer (S-3) and find my time completely occupied." With regard to the 25-year reunion, Derby says "yes" to the present to the institute and does not feel that he will be able to attend. He also adds: "You're doing a good job as Secretary. Much appreciated. Best of luck to all the boys."

Ev Doten writes in from 4370 Grayton, Detroit, Mich.: "At a recent meeting of Detroit Technology Association were many new Tech men, but none from '19. I'm very busy on war work, but did get a trip east last summer. I endorse your suggestion of bonds for the gift and favor a 'mixed' reunion."

Charles W. Drew, 200 Hawthorne Road, Interlachen Park, Hopkins, Minn., writes: "Greetings and thanks for all your efforts in behalf of '19. A year in Canada with much traveling has just ended, and I'm enjoying being home. I am now associated with the production department of the Honeywell Heat Regulator Company in Minneapolis." With regard to the 25-year reunion, he said: "I hope chances of being with you will

look better later than they do at this moment."

George P. Gail writes that he is living in Baltimore, Md. His address is care of Ernest G. Schmeisser '05, 3333 North Charles Street. "No particular news; not married." — L. A. Gillett, 628 William Street, River Forest, Ill., writes: "On September 1, I was appointed regional director of the Federal Works Agency for six states: Ohio, Illinois, Indiana, Michigan, Wisconsin, and Kentucky. My headquarters are in Chicago."

The following address changes have been received since our last notes: Laurence W. Cartland has moved from Manchester, N.H., to 55 Munroe Avenue, Westbrook, Maine; Francis T. Coleman has moved from West Englewood to 143 Tenafly Road, Englewood, N.J.; Eli Ettlinger has moved from Oak Hill, Ill., to 5424 Cabanne Street, St. Louis, Mo.

Ethel Fernald has moved from New York City to Orleans, Mass.; Professor Arthur R. Ford is now residing at 102 West Marshall Road, Lansdowne, Pa.; Grant D. Green, Jr., is with the Sperry Gyroscope Company, Inc., 81 Willoughby Street, Brooklyn, N.Y.; and Lieutenant Commander Roger T. Hall is now stationed at Dutch Harbor in the Aleutian Islands.

James A. Howe is residing at Parsonage Road, Rural Free Delivery 2, Greenwich, Conn.; Burritt A. Root has moved from Newington, Conn., to 723 West Onondaga Street, Syracuse, N.Y.; and Victor N. Samoyloff is now with the Korff Lumber Company, Millville, N.J.

Your Secretary is mailing to each member of the Class early in January the announcement regarding our 25-year reunion plans. It has been decided to give to the Institute war bonds made out to "M.I.T. Class 1919 Fund." Each member of the Class is to contribute a minimum of two, one of which can be donated in 1943 and the other in 1944. These bonds are to be mailed to your Secretary. It was also decided to compile a 25-year biography, to be published and distributed at our reunion. Kindly fill out the questionnaire and write out your sketch. Also, please send a recent photograph or snapshot to your Secretary. — EUGENE R. SMOLEY, *Secretary*, The Lummus Company, 420 Lexington Avenue, New York, N.Y. GEORGE W. MCCREERY, *Assistant Secretary*, 131 Clarendon Street, Boston, Mass.

1921

New Year greetings to you all. To the more than ten per cent of the Class who are in the armed forces, sincere good wishes for a speedy dispatch of the business at hand. To the rest of the gang, more power in their teamwork to provide effective support for that important ten per cent.

A check of those in service at this writing shows that 65 have commissions in the Army and 25 in the Navy. Of the Army group, we have a major general, 4 brigadier generals, 15 colonels, 15 lieutenant colonels, and 17 majors. The Navy contingent includes a rear admiral, 3 captains, 11 commanders, and 9 lieutenant

Please refer to Page III for information on Class Day and the Alumni Banquet — Saturday, January 30

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commanders. Alumni Association records as of October 15 list a total of over 3,000 Alumni in service, of whom 22 are generals and 9 are admirals.

Howard R. Healy, XV, a lieutenant commander, is to be honored posthumously by having a destroyer named for him. Howard, who was lost in the last engagement of the aircraft carrier U. S. S. *Lexington*, was the first of the Class to be killed in action in our country's forces.

Fred L. Raymond, XV, a lieutenant, has been reported by the Navy as missing in action. Fred left his sales managership of the Suburban Gas and Electric Company of Revere, Mass., on last January 3 to attend the Naval Mine Warfare School and later went to Hawaii. It is of interest that he is specifically referred to in Oliver Gramling's new book *Free Men Are Fighting: the Story of World War II*, which is a compilation of dispatches from Associated Press correspondents. Ace reporter Clark Lee wrote from Bataan: "Dear Boss: Please hire Johnny Weismuller for this assignment. I am getting too old to play Tarzan. Mel Jacoby and I were sitting on Corregidor dock this afternoon waiting to ride in one of the in-shore naval patrol boats commanded by Lieut. Fred Raymond of Amesbury, Mass. I was perched atop a piling, swinging my feet and trying to chew a mule steak sandwich. Jacoby and I were setting out to see some more Bataan fighting. But before we could get to the war, it sneaked up on us. There was a distant thump of cannon, a scream of descending shells and nearby bursts shattering the peaceful afternoon. Then I wasn't on the piling any more, but in the water of Manila Bay, 20 feet below. When the Jap guns shifted to other targets we swam to the other side of the pier. Then we climbed over barbed wire and made our way to safety by easy stages."

Our sincere sympathy is extended to Howard L. Vickery, XIII-A, a rear admiral, in the loss of his son-in-law, Ensign James Littlehales, Jr., in the crash of a Navy bomber off the Florida coast.

Alfred B. Quinton, II, formerly a colonel, has been promoted to the rank of brigadier general. A resident of Newton Center, Mass., he has been chief of the procurement planning division and is attached to Ordnance and Coast Artillery. Promotion to lieutenant colonel has come to Herman H. Pohl, I, of the Engineer Corps. William B. Plummer, X, formerly manager of the development and patent departments of Standard Oil Company of Indiana, has been commissioned a lieutenant colonel on special duty attached to the Undersecretary of War. William C. Colley, IV, has left his architectural firm in Nashville, Tenn., to accept a commission as a captain in the Army. Herbert W. Reinhard, XV, is now a first lieutenant in the Chemical Warfare Service. Herb had been serving as a civilian engineer in that branch of the service.

In the Navy, promotion to captain has been announced for Alfred H. Balsley. L. Willis Bugbee, Jr., XV, is on leave from his Detroit patent law office and

has entered the Navy as a lieutenant commander.

Robert R. Neyland, I, a colonel, has succeeded Stanley L. Scott, I, a brigadier general, as head of the southwestern division of the United States Engineers. Colonel Neyland is better known as the head coach of the University of Tennessee football team which dominated the Southern Conference in the last decade. He was graduated from the United States Military Academy and saw service abroad in World War I, following which he received a degree from Technology. He then returned to West Point as aide to the commanding general. In 1925, he went to the University of Tennessee as professor of military science and tactics and was appointed head coach the following year. General Scott, who served for four years in the southwestern district offices, returned to Washington preliminary to assignment overseas. He is also a West Point graduate and later received a degree from the Institute and attended the Army command and general staff schools. His son, William B. Scott, is in the Class of 1944 at Technology.

The scoop: Clate Grover, the "white-headed boy" Secretary of 1922, congratulated our Philip T. Coffin, VI-A, in the November Review on Pip's appointment as operating superintendent of the new Queens, N.Y., plant of the Aluminum Company of America. The pay-off: We wish to congratulate Laurence W. Coddington '22, on his appointment as assistant superintendent of the Queens plant. Larry served with Public Service of New Jersey following his graduation and then became vice-president of the New York insurance firm of Smyth, Sanford and Gerard, Inc. He will have an important part in the supply of a vital material for our war effort.

Those present at the fall party of the M.I.T. Club of Northern New Jersey on November 18 included Mor Aronson, Pip Coffin, Merritt Farren, Sumner Hayward, Ralph Lockwood '23, Louie Mandel, Joe Wenick, Ralph Wetsten, and Cac Clarke.

We talked with Lincoln B. Barker, II and III, and Mrs. Bruce Buckland, nee Florence Fogler of 1920, on a recent visit to the Schenectady works of General Electric. Linc is a metallurgist engaged in studies in connection with the wire mill. He is married and has a boy seven years old. Phlaughcie has returned to General Electric, where she is engaged in special work. She reports that her 13-year-old boy dates the daughter of Ken Coachman '22, who lives across the street from the Bucklands. Also at G. E. are Bruce M. Mills, VI, in commercial engineering, and John A. Scott, VI-A, in the general engineering laboratory. Linc appealed to your Assistant Secretary for a move to obtain class rings of the type which has been standardized since we left Cambridge. It is requested that any others who want such rings write to your Secretaries at once.

Albert E. Bachmann, X, is, at this writing, convalescing from an acute attack of appendicitis. We hope that by the

time this appears in print, Al will be back on the job as superintendent of the Mis-sisquoi Corporation plant at Sheldon Springs, Vt.

The following new addresses have been received during the past month: W. Robert Barker, XIV, Lake Lotawana S-39, Lees Summit, Mo.; Dayton T. Brown, II, Rural Free Delivery, New Hope, Pa.; Dr. John Campbell, XIV, 9 North Road, Glens Falls, N.Y.; Roger Clapp, I, 17 Thorndike Street, Palmer, Mass.; John J. Collins, I, 23 Howard Street, Reading, Mass.; Robert N. Felsenthal, X, 7 Surrey Road, Melrose Park, Philadelphia, Pa.; W. Corydon Kohl, VI, Room 528, 10 High Street, Boston, Mass.; Winthrop E. Luke, IV, 65 Horne Road, Belmont, Mass.; Stuart Nixon, XV, 1322 Fourth Street, Muskegon, Mich.; Sidney Senzer, II, 513 Alda Road, Mamaroneck, N.Y.; Francis R. Whelton, 96 Milton Avenue, Dorchester, Mass.

For years we have ended this column with an appeal for your letters with all the news that's fit to print. While news is wanted now more than ever, we suggest that you owe it to those in the armed forces to write to them first, and we recommend that you look up the list in the November Review. Your Assistant Secretary will appreciate receipt of your news and whatever information you hear from classmates. — RAYMOND A. ST. LAURENT, Secretary, Rogers Paper Manufacturing Company, Manchester, Conn. CAROLE A. CLARKE, Assistant Secretary, Federal Telephone and Radio Corporation, 1000 Passaic Avenue, East Newark, N.J.

1922

William B. Elmer has written a newsy letter to Yard Chittick from his home at 1250 Highland Road, Sharon, Pa. Bill wrote: "This is just to help swell the '22 class notes during some slack month after the echoes of the reunion have died away. I rounded out 20 active years of building up the transmission and distribution organization of the Boston Edison Company by dropping out and joining the transformer division of the Westinghouse Company in Sharon, Pa.

"True to my *Voo Doo* tradition, I concluded my Boston career by an exhibit of charcoal portraits at the Ross Gallery on Huntington Avenue. Perhaps you'd like to enliven the pages of class notes and shatter tradition to the extent of including a cut of the star item of my exhibit. I married the subject, Aletha Steele, at her home in West Thornton, N.H., on March 7. I have two little wonders by a former marriage — Billy, Jr., 9, and Bayard, 5. Aletha contributed two gorgeous daughters, and a son to the rounding out of our new family. — Jean, 13, Barbara Anne, 9, and John, 6.

"Among my chief regrets on leaving Boston was the resignation from the duties of accompanist for the Mystic Glee Club of Winchester, Mass. This was assuaged, however, by my appointment as accompanist for the Shenango Valley Victory Chorus of Sharon the week following my arrival in the new

1922 Continued

town. This is a grand friendly town and it is a joy to be in a position to pursue a series of fascinating developments under an intelligent and liberal management."

A very interesting letter has been received from William Bainbridge, who is a first lieutenant with the Corps of Engineers in England. He was within 200 miles of our reunion but could not attend because he expected to move at any moment. He found that the British ration was totally inadequate to keep the American soldiers happy when they were doing heavy outside labor, and now the soldiers receive American food in adequate quantities. The food arrives in tin cans, which are wasteful according to British standards. Bill has been very much impressed by the extent to which everyone in England salvages every last scrap of paper, wood, bones, or fat to turn into essential uses. He has been too busy to see much of England, except when he moves from one location to another to get new camps started, after which they are taken over by civilian contractors. The Secretary will send a copy of Bill's letter on request.

The versatile Eric Hodgins has appeared twice in the news recently. He spoke at the Boston conference on distribution and he addressed the meeting of the New York Sales Executive Club on October 13. Eric is editorial vice-president of *Time*.

We extend our congratulations to Earl H. Eacker who has been made vice-president in charge of the electric division of Boston Consolidated Gas Company and who will exercise the duties of the president in the latter's absence. Earl was with the Charlestown Gas and Electric Company from 1923-1930, and assistant to the vice-president of Boston Consolidated Gas from 1932-1937. He had been assistant to the president from 1937 up to his recent promotion. Earl has won an important place in the utility field, and we wish him all success in these trying times.

Harry E. Rockefeller, manager of process development for the Linde Air Products Company, is also on our roster of speakers. He recently addressed the American Welding Society in Birmingham, Ala. — Archibald F. Robertson has sent us a brochure entitled "New England," which he has written. It recounts the vicissitudes encountered in developing some of the mineral deposits in New England.

We are not allowed to publish details of the whereabouts or the activities of men in service. Nevertheless, if any of The Review readers have information about members of the Class who are in the service and which can discreetly be printed in this column, the Secretary will appreciate it if the information is forwarded to him. We now have the names of 80 of our classmates who are in active service. At least two of the men who were at the reunion are now wearing a uniform. George Dakin is a lieutenant commander in the Navy in Washington, and Cliff Gayley is a major, also in Washington. I know that everyone in the

Class extends all best wishes to any of the service men who may have the opportunity to read this column. — CLAYTON D. GROVER, *Secretary*, Whitehead Metal Products Company, Inc., 303 West Tenth Street, New York, N.Y. C. YARDLEY CHITTICK, *Assistant Secretary*, 77 Franklin Street, Boston, Mass.

1923

The executive committee of the Class has been canvassing the possibility of a 20th reunion. The general feeling of the committee as the result of correspondence with President Bob Shaw is that it would not be advisable to attempt a reunion this year. The date which might be considered for a reunion would be either around January 30, Alumni Day, or in June. With so many of the Class in the armed forces and war industries, with everyone busy, and with the difficulties and uncertainties of transportation, the decision not to have the reunion seems to be in line.

It is pointed out, however, that it would be very appropriate and desirable if on the night of January 30 groups of our Class got together and celebrated the occasion wherever a sufficiently large number of men are located in centers such as Boston, New York, and Washington. There will, however, be no attempt made by the class officers to arrange such meetings, which will be left to the enthusiasm of classmates in the various locations.

Jack Keck has a number of items about men in the New York area. He reports, for example, that in addition to keeping up his own company, Voltarc Tubes, Inc., in Newark, Miles Pennybacker has recently taken over the responsibility for a radio tube plant for Machlett Laboratories at Norwalk, Conn. He is living in Westport. — Walt Marder is back in Plainfield, N.J., after living in Boston for a number of years. He is general manager of Machinery Builders, Inc., in Long Island City, N.Y. — Palmer C. Putnam is with the National Defense Research Committee in Boston. In May, Richard G. Herd was appointed senior supervisor of the bureau of industrial and technical education of the State Education Department, Albany, N.Y. — H. C. L. Miller, Jr., is assistant administrator of the Office of Lend-Lease Administration in Washington.

Leonard J. Brooks writes from Salt Lake City: "I left Milton Bradley Company of Springfield, Mass., to join the Du Pont division of the Remington Arms Company last fall. Otto C. Kohler '31 of South Hadley, a captain, followed me as President of the Technology Club of the Connecticut Valley. I am with the Remington Arms Company as shift supervisor at the Utah Ordnance Plant. Salt Lake City agrees with us, and I can boast of a son weighing nine and a half pounds, born on July 13. He is doing fine. Hunting and fishing are wonderful out here. Yellowstone, Bryce Canyon, Zion National Park, and Grand Canyon gave me much enjoyment during my vacation."

Mrs. R. C. Kleinberger writes from White Plains, N.Y., in answer to a recent

inquiry about the address change of her husband, Richard C. Kleinberger, that he left seven months ago for Iran in the capacity of electrical engineer on a government contract. She says she hears from him quite regularly, that he is in good health, and that he would more than welcome letters from any one of his alumni acquaintances. His address is Army Post Office No. 816, Box 11, care of Postmaster, Miami, Fla. Mrs. Kleinberger suggests using air mail. The rate to Iran is six cents per half ounce.

A. F. Flournoy, patent attorney and patent engineer, is active in Louisiana engineering societies. He recently moved his principal office to Shreveport from Monroe. He intends sometime soon to open a part-time office in Baton Rouge. — Herb Hayden reports that he was transferred to Danville, Ill., last July and is located there at the Wabash River Ordnance works of the Du Pont Company. He is organizing a department for the maintenance of buildings and equipment at that location. A year ago he completed a similar assignment at the Kankakee Ordnance Plant. His son Bill is a freshman at Bucknell University, and the two girls are in high school.

Bernie Proctor, Associate Professor of Biology at M.I.T., was recently listed among the instructors giving courses in connection with the Massachusetts University Extension Service. His course is entitled "Bacteriology and Its Applications." — Charles E. Locke '96, Alumni Secretary, writes that among those reported to have been safe and well at the Santo Tomas internment camp, Manila, in June are Gilbert and Nan Whitehead.

Russell E. Randall was promoted in October to the rank of brigadier general and was named commander of a fighter command, the War Department announced. An Army flyer for 17 years, he has most recently been on duty in Panama. Last year he was decorated with the Bolivian Order of the Condor in recognition of his work as commander of the first air military mission to that country. — Joseph D. Arthur, Jr., a colonel, is the new assistant engineer commissioner of the District of Columbia, having taken over that assignment on October 12. — I have information on the current rank of a number of other men in the military and naval services. Some of these represent recent promotions: John J. Breen, John H. Hinds, Alexander J. Stuart — colonels; Martin H. Burckes, Clarence F. Hofstetter — lieutenant colonels; Raymond H. Starr, Philip S. Wilder, Edwin D. Wilson — captains; and Calvin M. Bolster and Lisle J. Maxson — commanders. — HORATIO L. BOND, *Secretary*, 457 Washington Street, Braintree, Mass. JOHN M. KECK, *Assistant Secretary*, 207 Bloomfield Avenue, Bloomfield, N.J.

1924

The following letter from Anatole Gruehr speaks for itself: "I have been very remiss in informing you about New York happenings. Here are, however, a few items of interest. Hank Shore was commissioned a major in the Army last

1924 Continued

August and is doing special work in Washington, D.C. He writes: 'Work moves swiftly, even if not as fast as I like, and shortly it should be in a form to give concrete evidence of the fact. It sure is funny how quickly it has affected me. Can't begin to tell 'cause I can't recognize myself.' Whether Hank refers to a mental change or to a physical change brought about by the application of a razor, he does not say.

"Bill Correale was called into active service about the first of September. He is a captain in the Corps of Engineers and is also stationed in Washington. His two children are with his sister in New Jersey. Louis Porter dropped in to see me a couple of weeks ago. He has been a lieutenant in the Navy since spring, and is attached to the Navy Yard in Washington. Greg Shea wrote from Salt Lake City, Utah. He is doing something on a big scale with the Remington Arms Company in their new plant. Evelyn Shea arrived in New York recently to look after their big place in Westchester. She says that Greg is very busy, as all men in war production are today.

"Last summer I ran into Jim Metcalf at the Technology Club in New York. He is a consulting power economist and is located in the Joseph Vance Building, Seattle, Wash. No need telling you that Bill Robinson is being transferred to Schenectady. His picture, handsome as ever, recently appeared in the *Electrical World*. George Arapakis is on wartime leave of absence and is teaching future Army and Navy officers all sorts of secret things at the College of the City of New York. He likes his teaching very much and it seems to agree with him. I hope this outpour may prod the consciences of your other would-be correspondents and that we may hear more about our classmates in these fast moving days." To which the Secretary says "Amen."

Here's another interesting letter from Bill Billard, whose address is Field Production Division, Building No. 3, 10th Floor, Navy Yard, New York, N.Y. Bill says: "In response to your request for information, I am writing you somewhat briefly concerning my whereabouts. Until recently I was an active partner in charge of research and the statistical staff of the firm of J. R. Williston and Company of 115 Broadway. The firm was established in 1889 and is a member of the New York Stock Exchange and other principal national exchanges.

"My firm has granted me a leave of absence for the duration. I have been commissioned a lieutenant, senior grade, in the Naval Reserve, and at present I am attached to the Navy Yard in New York. I am more than pleased to report that I am serving under Gerald W. Thomson '17, a commander. My best to you and all the Class."

Three generals associated with '24 are much in the news these days. Jimmie Doolittle, a major general, is head of the American Air Forces in Africa. Stephen Henry, a brigadier general, is commandant of the Armored Force School at Fort Knox, Ky.; and Frank McSherry, also a

brigadier general, is director of operations of the War Manpower Commission. We salute all three.

Bill Rosenwald was in Boston in October (and didn't let the Secretary know it) to open the 1942 combined appeal of the National Refugee Service, of which he is president. That is one of his many great philanthropies in which he is following the trail blazed by his famous father, the late Julius Rosenwald.

Professor Hoyt Hottel gained wide newspaper attention recently with two projects, one the discovery of new scientific uses for silver and gold for the production of alloyed metals, and the other an idea for converting solar heat into other forms of energy which man can use. This last was headlined as "Science to Use Sun When Coal Is Gone." — According to *Modern Science*, Professor Martin Buerger has discovered a new mathematical rule for predicting just how metallic atoms in alloys and in glass would be distributed.

From Harold Hazen we have the following: "Lyman S. Johnson, VI, came to Boston on a temporary assignment having something to do with the war program. For a number of years past he has been with the Altec Service Corporation, stationed in Atlanta, Ga., keeping the sound movie systems in adjacent territory in operation. He is married, has a daughter eight years old, and appears to have found the South much to his liking." — There must be much more news of new jobs, promotions, men in the service, and so on. Let's have it. — FRANCIS A. BARRETT, *General Secretary*, 50 Oliver Street, Boston, Mass.

1925

Congratulations to Wally Westland on his appointment as '25 Class Agent for the Alumni Fund. Let's get behind him and sort of push '25 off the bottom (or near bottom) of the contributing Classes. These are tough times, but let's show that, even though the times are tough, we can pull ourselves up by our boot-straps and land higher up on the ladder. The list of '25 men in the armed services, which accompanied Wally's October 26 letter, was most interesting, showing us for the first time all in one place the men who as individuals have come up from time to time in these notes. The total, you will recall, was 67, of whom 45 were in the Army.

Steve Gilligan, who is president-elect of the Boston chapter of the Society for the Advancement of Management, has left the Hood Rubber Company in Watertown, Mass., to take the position of personnel manager of the Eagle Pencil Company in New York City.

Willard Gardiner of the Boston mail-order division of Sears Roebuck, has gone to Washington on leave of absence for several weeks. I called Mrs. Gardiner at M.I.T., where she is connected with the Department of City Planning, to get some more details. She informs me that his present appointment may be temporary, and that she will let me know of any change in his status. More news in a

month or two. Willard is also active as a director in the Boston chapter of the S.A.M. Up to the time of his departure for Washington, he was chairman of the chapter's master round table on collective bargaining, but he had to resign because of leaving the city for a time.

At the November meeting of the above-mentioned Boston chapter, I encountered Bob Ashworth, II, who is president of Ashworth Brothers, Inc., manufacturers of card clothing. Any textile men reading this will know what he means, and to any others, any partial explanation would be useless. Not having the space to attempt it, I'll leave it at that. His company has plants in Fall River, Worcester, Philadelphia, Charlotte, N.C., and in other southern cities. He tells me that he travels quite a bit in the course of his business, and he has promised to collect any information he can about members of the Class whom he meets in his travels. So if any of you meet Bob, looking as much like he did during our undergraduate days as any one of us could hope to look, pass along your news and gossip to him, and I'll pump him from time to time so that the information will get into the notes. He says he intended to attend our 1940 reunion, but was in Sea Island, Ga., at the time, and so couldn't make it. — HOLLIS F. WARE, *General Secretary*, 3 Aquavia Road, Medford, Mass. F. LEROY FOSTER, *Assistant Secretary*, Room 5-105, M.I.T., Cambridge, Mass.

1926

In an effort to inspire this faltering Scribe, Tom Green, the sage of West Hartford, mailed in the other day a clipping from the Andover Academy *Alumni News*. The Secretary was perplexed, for the only point he could find in this clipping was a *double entendre*, which he is sure Tom would be the last to suggest as an example for this dignified chronicle. At any rate it brought welcome evidence that Tom is still as lively as ever.

Lively, too, is the following formal communication from our sage of agricultural science, John E. Nicholas, who is a professor in the department of agricultural engineering at Pennsylvania State College: "Dear fellow scientist: The Class seems to supply you with an abundance of their activities, and I am delighted to have them keep the Secretary busy.

"At a recent meeting of the Gamma Sigma Delta, the honor society of Agriculture, I found myself advanced from secretary-treasurer to president. I thought you ought to know it. (I believe the ceiling salary limit for this position is \$25,000.) If you read the November issue of *Refrigerating Engineering*, you will find that as chairman of a joint committee (American Society of Agricultural Engineers and American Society of Refrigerating Engineers), we publish a proposed 'Standard Method of Rating and Testing Milk Cooler.' If you should continue in the December issue, you would find there an article entitled 'The Keeping Qualities of Milk.'

1926 Continued

"Right now I am determining the zone of crystal formation on a piece of roast pork, which comes from a pig that has been scientifically raised. That isn't quite all of it — come over and taste some of our dried beets or celery. Anyway, thermodynamics is muscling in beautifully even in the field of agriculture, where the entropy tends towards a minimum."

Among the several clergymen in our versatile Class is the Reverend Dr. Raymond B. Blakney, pastor of the Second Congregational Church in Williamstown, Mass., who has just recently been commissioned a captain in the United States Army Chaplain Corps. — John Larkin is working for the steel branch of War Production Board in Washington. — Robert Mattson, formerly trainmaster of the Northern Pacific Railway Company at Pasco, Wash., is now a major in the United States Army. — John A. Sweeton, late of Seattle, Wash., is now a lieutenant commander in the Navy, located at Portsmouth, N.H. — Elton Staples, an Army captain, at last report was stationed at Fort Monroe, Va. — Last August, Edmund Capone was married to Rachel Cutler in the First Congregational Church of Holliston, Mass. — JAMES R. KILLIAN, JR., *General Secretary*, Room 3-208, M.I.T., Cambridge, Mass.

1928

Bob Proctor is now a lieutenant, junior grade, in the United States Naval Reserve. He took his indoctrination at Dartmouth. Benny Hough is now a captain in the Army's Corps of Engineers. Bill Kirk must now be addressed as Lieutenant Kirk of the United States Navy. He is stationed in Boston and is the proud father of a baby girl. Up to now the Kirk progeny have all been boys.

Speaking of the Navy, Richard Roth has received a commission as a lieutenant with a CEC-V(S) designation, which means senior lieutenant, civil engineer corps, volunteer (specialist). Dick is attached to the "Sea-Bees," or construction battalions, and expects to be sent overseas. — Don Buckner of Needham has been elected executive secretary of the Southern Worcester County Health Association. He is married and has a daughter Phyllis, who is eight years old.

We have two news notes about two Harringtons. First, Harold Harrington now has two children — Mona, age six and a half, and Susan, age four. He is the postmaster of Graniteville, Mass. — Henry D. Harrington, IV-A, is with the Du Pont Cellophane Company.

Oscar Lasser has been in Aruba in the Netherlands West Indies for almost ten years. He is engineer for the Lago Oil and Transport, Ltd., a subsidiary of Standard Oil of New Jersey. Because of the exposed location of Aruba, when the island was attacked by Nazi submarines, Lasser sent his wife Beatrice and son Paul, age 9, home to New Jersey.

David N. Hauseman, a colonel, is now deputy district chief of the Philadelphia Ordnance District. — Edwin A. Francis, IV, is now a captain in the United States Army Corps of Engineers. According to

the *Denver Post*, he is stationed at La Junta, Colo., as executive officer.

That fellow Bob Harris is a hard man to keep track of because he's involved in so many things. For example, in an article in a Minneapolis newspaper, Jeanette Campbell, home economics director of the Minneapolis Gas Light Company, wrote: "Dr. Robert S. Harris, professor of nutrition at Massachusetts Institute of Technology, once surprised his audience by telling them to throw away their leftover foods until they learned to prepare just enough for one meal. One woman spoke up and objected, saying: 'Food costs money and now you are telling us to waste it.' His reply was that vitamin content of leftover foods is definitely inferior to that of newly cooked foods." — In Cambridge recently the Cambridge Red Cross demonstrated their canteen corps for feeding bombed populations. Typical meals were made up, including "... soup which was a sample of military emergency rations prepared from the formula developed by Professor Harris at M.I.T." Finally, I have the reprint of an article entitled "A Modified Micro-Fermentation Method for the Estimation of Thiamine," written for *Industrial and Engineering Chemistry* by Josephson and Harris.

Hall Hibbard, who is vice-president and chief engineer of the Lockheed Aircraft Corporation in Burbank, Calif., is now president of the Institute of the Aeronautical Sciences. Congratulations, Hall. — GEORGE I. CHATFIELD, *General Secretary*, 6 Alben Street, Winchester, Mass.

1933

The absence of news and the pressure of business has been the reason for the lack of class news in the last few issues of *The Review*. We hope some of you plan to attend Alumni Day, January 30. — Cal Mohr writes that a Chicago reunion is planned. If you want any information about it, please contact him at Post Office Box 81, Ringwood, Ill.

Ed Atkinson sent us the following report on Course V: "Bill Adams was married to Elaine Pingree of Newburyport in August, 1941, and now lives at 9 Sewall Avenue, Brookline. Bill is still with John E. Cain Company, serving as assistant plant manager and worrying about the boys who suddenly find work in the Navy Yard much more interesting than making mayonnaise and other food products. Irv Crane reports that he is still single. His current interest in life seems to be the development of synthetic protein fibers for Atlantic Research Associates. Charles Cullison has not been heard from for some time, but the recent list of those in our Class now in the Army bears his name.

"At the Buffalo meeting of the American Chemical Society last September, we saw Mel Ehrlich, Bob Heggie, and Earle McLeod. Mel is teaching in one of the Buffalo technical high schools and now lives at 193 Claremont Avenue. He has a son Alan. Bob is with the American Chicle Company in New York. He spent

over an hour telling me about his year in Sarawak. The jungle didn't change him a bit despite his adventures with cobras, Dyaks, and Japs. While he was away he became a father. Mrs. Heggie was also at the A. C. S. meeting. Earle and his wife flew out from Providence for the meeting. Mac told me that last spring he attended a convention in Atlantic City with none other than our Course Secretary, Ed Hillenbrand. Ed is still in good form, for Mac has heard nothing from him since he retired to the fastness of Charleston, W. Va.

"Gil King is now with the A. D. Little, Inc., in Cambridge. He is working on a joint war project at the Institute and at the Little labs. George Green is a captain in the Chemical Warfare Service. We think that Ben Herlich and Kaplan are also in service, but we didn't notice their names on the Institute war service roster. Peter Parker is also in the Army. We have no recent news from Bruce, Garcelon, Moran, or Eitelman. Notice of Bruce's marriage appeared in these columns a year or so ago. The Althouse Chemical Company in Reading, Pa., continues to introduce new lines of excellent dyestuffs, so presumably Garcelon is still going strong.

"After nine years of mystery, we finally caught up with Harry Steinman, although we doubt that he is aware of it yet. About 1936, Harry set out to acquire graduate degrees. I believe he got an M.S. from Johns Hopkins University and just last June received a Ph.D. from Columbia University. Harry, so my Columbia spy tells me, is still known as 'new phenomenon Steinman' — which brings back memories of the year when we did our senior theses at the same bench. Harry majored in biological chemistry and is now employed by the United States Public Health Service.

"Your correspondent is still on the job at the University of New Hampshire. I spent the first few months of the past year wondering just what day I would be called to active duty with the Chemical Warfare Service. About April, it was decided that I could resign my captaincy to remain here teaching chemistry. There was very little hesitation on my part, for even at that early date the shortage of chemists in industry was acute. Since that time, of course, it has become common knowledge that the best place for a professional chemist is not in the Army. Up here we have had no trouble in having our students deferred until they are ready to enter industry. The American Chemical Society and the National Roster of Scientific and Specialized Personnel are both doing a good job of keeping chemists out of the Army. Of course, if this deferment is not extended to our 18- and 19-year-old students, then, as President Compton recently pointed out, in a couple of years there won't be a supply of technically trained men. In this event, your correspondent will have little moral or financial incentive to remain in academic life for the instructing of home economic students or Army privates in the wonders of general chemistry. In other words, we

1933 Continued

may change our address this winter. We are doing the usual air raid precaution work. Last winter we gave a number of lectures on war gases and explosives; since May we have spent a very enjoyable period each week watching for airplanes. Our post is out in the country about six miles from Durham and we have watched the seasons come and go. Sitting alone on a hill for three hours watching the sunset is an experience one should not miss. That one can at the same time keep the long-distance phone busy with reports is, as we see it, entirely incidental." — We hope other folks will follow Ed's footsteps and send in some news. Thanks again. — To you all, a successful New Year. — GEORGE HENNING, JR., *General Secretary*, Belmont Smelting and Refining Works, Inc., 330 Belmont Avenue, Brooklyn, N.Y. ROBERT M. KIMBALL, *Assistant Secretary*, Room 3-104, M.I.T., Cambridge, Mass.

1935

Recent marriages include those of Elizabeth Madsen to Perry Ware; Julia Tauber to Gustav Freudenberg, a lieutenant; and Mary Mildred to Julian Bigelow. The engagements of Maren Lucille Lee to John C. Quinn, a Navy lieutenant; and of Virginia Lewis to Lincoln Paige, have been announced.

Ed Taubman, his name prefixed by the designation of lieutenant, crashed through with a letter from Fort George G. Meade, Md. His first sentence might well serve as a motto for all the rest of you. He wrote: "The brevity of the '35 column has at last prompted me to write, despite the fact that almost all I'll have to prate about will be personal. As you can see, Uncle Sam has got me by the britches as a shavetail in the reception center here. We nursemaid the new recruits for their first five days in the Army. This consists of giving them mental aptitude tests in mechanical, radio operator, and general classifications. On the results of these, plus a personal interview with each man and the exigencies of the moment, it is determined where to place them in the Army. In addition, we outfit them with clothing and equipment and give them a slight amount of basic training before sending them on their way to posts all over the country. The old days of throwing clothing at the new men and if-it-fits-it's-an-accident are all over. We really go to a great deal of pains to see that they get a good fit. For example, shoe fit is checked four times on every man, and even then if there is the slightest complaint later we go to work on him to make sure he's comfortable. Sometimes this is a problem. It will probably surprise you to learn that many men have two feet of different size, some varying as much as one and a half inches in length.

"Last Christmas I spent my first vacation in six years at Miami. While there I met Cecile Bloch of New York City, who was a junior at the University of Miami. As of April 12, she became an ex-junior, and I have now come to the startling discovery that two cannot live as cheaply as one. Runs in stockings are a worry these

days that never beset me before." Many thanks for the letter, Ed, and our heartfelt sympathy (spelled congratulations) to you in your new problems.

As we mentioned in the November Review, Dick Lawrence resigned from the post of Assistant Secretary when he went into the Navy. Now we have acquired a new pair of ears at Technology. These appertain to Dudley Williams, who brings us up to date on himself with the following: "If I am to take on the duties of Assistant Secretary, I think I should begin by enumerating my last few years' activities, and by recommending that any classmates who have been similarly remiss should make themselves assistants to the Secretary by doing the same.

"After leaving the Institute, I did a year of graduate work at Brown University, assisting in physical chemistry. The call to Cambridge was too strong, however, and I decided to return to Technology. Two years spent in tutoring college and secondary school students in Providence enabled me to gain sufficient ground financially to do this. I returned in 1938 to work for my Ph.D., and, having had the good fortune of being an M.I.T. graduate, was able to complete my academic requirements that year. After more tutoring in the summer of 1939, I began teaching chemistry part-time at the Rivers School in Brookline and started preliminary work on my thesis research. The next year was also spent on research, and in the fall of 1941 I returned to Rivers to teach physics, chemistry, and mathematics. Although the spring of this year found my research still incomplete, I transferred my efforts at the end of May to war work, on which I am still engaged, under a program of the National Defense Research Committee.

"I am in the Research Laboratory of Physical Chemistry at M.I.T., and I should welcome a call from any classmate who finds himself within phoning or visiting distance. Anyone who comes to Boston on business will find it worth the trip across the river just to see the amazing changes in physical appearances the war has made at the Institute. Contributors to the Gym Fund of a few years ago for increased athletic facilities would be interested to learn how these facilities have also become a contribution to the prosecution of the war in making Technology men more fit, in toughening them up for rigors of the field, and in giving them life insurance in the form of experience in swimming. Contributors to the annual Alumni Fund can be no less sure that they, too, are assisting war efforts in keeping the Institute in a position to function effectively under the many and changing demands made upon it for service to the nation."

Dudley is contributing to the morale in his spare time by conducting square dances for service men every Sunday at the Y.W.C.A. and occasionally at the service club on the Esplanade and the Red Cross hospital at Camp Devens. Your Acting Secretary, as one of Dudley's most earnest but most flat-footed pupils while he was still in Cambridge, can testify that the

Army and Navy must certainly be eating up his instruction. And he can't understand why Dudley neglected to mention his constant female companion, Lisa, one of the best ball-playing Doberman pinschers ever seen.

A progress report from H. B. Kane '24, Director of the Alumni Fund, reveals that our Class is individually richer than a year ago, but the number of men contributing is less than last year. Several neighboring classes are outdoing us. How about dragging out your checkbook now before you forget it?

Finally, we should mention a communication from the Review Editors. Because government regulations prevent us from including in the class notes any strategic military or naval mail addresses, you might be discouraged from writing to a classmate now in the service. The staff of The Review, however, has offered its services, and will act as a central forwarding station. — WALTER H. STOCKMAYER, *Acting General Secretary*, Department of Chemistry, Columbia University, New York, N.Y. DUDLEY A. WILLIAMS, *Assistant Secretary*, Room 6-127, M.I.T., Cambridge, Mass.

1937

The past month has seen your correspondent doing much hurried traveling on war business. This, unfortunately, has left little time to look up you fellows in the various places I have hit. I spent all day, October 27, at the River Works of the General Electric Company in Lynn, Mass., arriving at 12:30 A.M. and leaving at 5:12 P.M. that same afternoon, and running like anything to catch the train. Managed to telephone Phil Peters at South Station and talked with him for a few minutes. Spent the day of November 6 in Washington. What a jam! They even pack the taxicabs so full that half the people have to inhale while the other half exhale.

Of interest to those of us who were in Aberdeen in 1936 will be the fact that I saw Major Hardy on the train and stopped to talk with him for a few minutes. Believe it or not, he is now Major General Hardy and apparently the same sterling character we remember. — While in Washington, I ran into Dr. Compton at the Wardman Park Hotel. I also saw John Cook '38 at dinnertime. Mr. and Mrs. Cook, a friend, and I gathered after dinner for a few moments of idle talk of this and that and George Wemple. Seems that George is quite the social Army captain and is doing things in a big way from his headquarters in the University Club. I telephoned him later that night for a bit of reminiscing and some further news of him or any of the other fellows who might have been in Washington, but had no luck. He knew of no other classmates.

Again, on November 20, I made a rapid trip to Pennsylvania State College, but this time I saw no members of the Class. If there are any there, they certainly keep themselves well concealed. All I could see were ensigns saluting and saying "Aye, aye, sir." — I saw Ed Olmstead,

1937 Continued

II, at the Lawrence Engineering and Research Company in Linden, N.J., on November 23. Ed is one of the key men in the experimental department, and he tells me that between the machines and the Harvard engineers, he has a pretty tough time. He has moved to 765 Summit Avenue, Westfield, N.J. After finishing a lengthy discussion of engine indicators and allied subjects, he suddenly turned to me and said "Where is Bill Austin these days?" I had to confess that I did not know, so perhaps, Bill, you can tell us where you are and what you are doing.

Norm Robbins sent me a fine newsy letter from Fort Worth, Texas, where he is with the Consolidated Aircraft Corporation. He is bubbling over with news and views by Robbins, as follows: "The fickle finger of Fate has nudged me again, so from now on I shall hold forth deep in the heart of Texas." After about a year in Detroit, the company must have figured that they had given Ford enough help, for I got orders to proceed posthaste to San Diego, and then to plan on moving to Fort Worth. They gave me the job of running the structures department for the whole works, which includes the test laboratories and weight control group. Needless to say, it keeps me busy. One of our biggest problems at present is man power, so I spend a lot of time interviewing and hiring men whenever possible. I have not found a permanent address yet, but am awaiting the completion of an apartment house into which I expect to move. I guess I wrote you while I was in Detroit that Fred Baggerman was working for Ford at Willow Run. The enclosed clipping will indicate that Fred has married his way into the business, as William J. Cameron is one of Henry's right-hand men.

"Texas is quite a place. People here are extremely friendly and informal. The weather, so far, has been fine, but next summer will be another story. The town does not have much to offer for entertainment, nor are there any decent places to eat. But when you get used to those inconveniences, life here isn't too hard to take. Since I do not have much time to waste, I think I shall probably like it pretty well." Thanks, Norm. We hope to see you when you get East again.

The enclosed clipping read as follows: "Jean Louise Cameron, daughter of Mr. and Mrs. William J. Cameron, of Morley Avenue, has decided upon August 15th as the date of her marriage to Frederick Peters Baggerman, son of Mr. and Mrs. William John Baggerman, of St. Louis, Missouri. The service will be read by the Rev. Hedley G. Stacey, at four o'clock in Martha-Mary Chapel. Miss Cameron has asked Mrs. Frank Hutto (Barbara Smith) and Jane Creith to be her attendants. Mr. Baggerman will have his brother, William F., as his best man and Frank Hutto will seat the guests."

John Hanlon and Elizabeth Duston were married on October 31 at West Roxbury, Mass. Hanlon is now a research engineer at the Philadelphia Navy Yard. —James W. Pearce and Helen DeKay Thompson were married on September

26 at Covington, Ky. Pearce is an ensign and has just completed his preliminary training at the Northwestern Naval Training Station. — R. E. Stoiber, assistant professor of geology at Dartmouth College, is now in Washington with the Army Signal Corps. L. Charles Hutchinson has been awarded a research fellowship in mechanics at Brown University for the second semester of 1942-1943. Hutchinson received his B.S. with us and his Ph.D. in 1940. — Guess this winds up the journal for the present, fellows. Best wishes for the New Year! — WINTHROP A. JOHNS, *General Secretary*, Route 1, Bellemead, N.J. PHILIP H. PETERS, *Assistant Secretary*, 10 Babson Park Avenue, Wellesley Hills, Mass.

1938

An extraordinary set of notes you'll find here — not one marriage or engagement to announce. — A card from Frank Gardner says he is now enjoying the country around Denver. He is plant metallurgist at the American Manganese Steel plant there. His address is 1660 Logan Street, Apartment No. 2 — just in case you want to send congratulations along about March 1.

News still reports Vernon Lippitt at Northwestern. After being shut out of his Rhodes Scholarship award by the Nazis, he joined the Northwestern University mathematics department. Now, however, he is in the electrical engineering section. — Fred Crocker has recently been transferred to Pensacola.

A Radcliffe College commencement notice finally reached us. In it we find that Pearl Rubenstein recently received a Ph.D. in astronomy. She had formerly received an A.M. in the same subject. Pearl is now back at the Institute researching. — Johnny Craig is at the Bell Telephone Laboratories in New York, in the technical employment department. John is married and has a young daughter. He is living in Madison, N.J.

A swell letter from Gus Rossano, dated November 4, brings us the biggest carload of news in a long time. After receiving a master's degree in sanitary engineering from Harvard, he was commissioned in the reserve of the United States Public Health Service and worked in Maryland and Washington. While in D.C., he wrote: "I was in contact with many M.I.T. men: Godwin Gay '37, VI-A, a civilian expert with the Navy, and now happily married; George E. Shea, VI-C, also a civilian with the Navy, married, and the proud possessor of one male offspring; Fred Aldridge '33, XI, an assistant sanitary engineer in the reserve of the United States Public Health Service; Jimmy Surprenant, I and XV, an engineer with Merritt, Chapman and Scott; Henry Rugo '37, VII, who is a lieutenant in the subsistence branch of the Quartermaster Corps and is stationed in Washington, D.C."

"Since October 1, I have been assigned to the department of health of the state of Washington to direct the engineering phases of a new program of industrial hygiene for this recently industrialized

area. The work is extremely fascinating, since it involves studies in the large ship-building, aircraft, and other war industries, in an attempt to eliminate industrial hazards and occupational diseases. We feel that even a slight reduction of the enormously large number of man-days lost per year on account of industrial accidents and occupational diseases will amount to an increase in production capable of hastening the successful conclusion of this war.

"It might interest some of the fellows in the other classes to learn that Link Herzeca '37, XVII, is a lieutenant with the Corps of Engineers in Alaska; that Johnnie Fellouris '37, I, and Al Wynot '37, XVII, are also Army officers on active duty 'somewhere.' Enver Muratzade, in addition to receiving his Ph.D. at the California Institute of Technology, has taken on a wife. I understand there are many M.I.T. men around Seattle, and that there is a local Technology club, which I hope to uncover soon." — Gus hopes some of you classmates out on the West Coast will drop him a post card. His address is Department of Health, Smith Tower, Seattle, Wash.

Jack Wallace is down in Bristol, Va., with Universal Moulded Products Corporation in their Bristol Aircraft division. We ran into Don Mitchell unexpectedly the other day. He is now serving in the Chemical Warfare Procurement Office in Boston. — DALE F. MORGAN, *General Secretary*, 142 Woodland Avenue, New Rochelle, N.Y. RICHARD MUTHER, *Assistant Secretary*, Room 1-180, M.I.T., Cambridge, Mass.

1940

Before this column gets under way, we must first regretfully inform you of two deaths which have occurred in our Class. George R. Smith, a lieutenant colonel, was killed on July 31 in a plane accident; and Dan D. Clark passed away on September 5, following a five months' illness.

The best way to get the news to you fellows is to run it off in dribbles, so here goes. — Albert W. Schlechten, formerly on the faculty in the department of metallurgy at the University of Minnesota, has been selected to head the department of mining at Oregon State College. — H. F. Sagoci has been appointed instructor in mining engineering at Lafayette College. Herbert Hawkes, Jr., who is with the United States Geological Survey has gone from Washington, D.C., to Camaguey, Cuba. J. G. Brazier is designing planes for the Douglas Aircraft Company. A. M. Aksoy, who received his master of science degree in metallurgy, has been appointed an instructor at Lafayette College. — Robert D. Macdonald has been named a research engineer on the technical staff of Battelle Memorial Institute in Columbus, Ohio.

Bill Kather received his second lieutenant's commission at Edgewood Arsenal last July. Mason B. Lindsey took his commission as an ensign in the Naval Reserve on September 1. When last heard from he was at the naval training school at Cornell University. Alvin Guttag

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wrote that he landed a job as junior patent examiner at the United States Patent Office in Richmond, Va. I. M. Pei worked for Jack Gray's father on a government housing job, then he was appointed research assistant to study solar energy at the A. Farwell Bemis Foundation. After a few months, he started his fellowship trip, visiting about 50 factories and covering about 12,000 miles. At present he is working for Stone and Webster in Boston, as a designing draftsman, and is also handling elementary design. Joe McGinnis has been working for the United States Engineers in New York. J. M. Rosse is working in the Portland Navy Yard. The Kingsburys are now settled in the home which they designed, and are doing much "picture hanging and re-arranging of furniture." Margaret Dienes has a year-old daughter named Clare, whom we've never mentioned in these columns.

Long ago, Wes Van Sciver wrote me a note which I'm sure would be of interest, though it is very out of date by now. His letter read as follows: "I haven't very much to tell, but your plea at the end of the column each month finally got me. Right now I'm at Randolph Field as a student officer in basic flight training. Being a student officer means that you wear your bars, but no one notices them. Had about a year of service at Wright Field, where quite a few of the boys are, as you know. Guess I wasn't quite satisfied to just 'keep 'em flying'! And the more I fly 'em, the more I feel that way. I like sitting on a parachute much better than a swivel chair. There are surprisingly few of the boys in this part of the country. Pete Horton is here in the upper class and Harry Phinizz is an engineering officer in Victoria, Texas. I guess most of the fellows are using their brains instead of their sense of balance."

Norm Klivans managed to send in a bit last August which I still believe is worth printing. Norm says: "For myself, I've had a pretty good time of it. Got transferred from the headquarters of the Air Forces technical training command on last June 5. As I enter my second year, the work is sure a far cry from Technology, for I'm chief of the overseas unit for enlisted air force personnel. On September 1, I'll be shipped to meteorological school at New York University. To think how I used to look down my nose at those jokers back on Massachusetts Avenue!"

"Greg Bry is roasting in Panama. He writes that the women are scarce, and the climate is hot as blazes. George Weinbrenner is overseas and is doing very well. He is now an aviation ordnance specialist and a good one. Also, he is now regular Army. Charles Freeman passed me the other day and looks pretty good, considering he is now a married man. I also met Schrade Radtke the other night. He is now on active duty."

The fellows are fast becoming "non-eligibles," as you will note by the following list of marriages: Alfonso Rizo-Patron Remy to Rosemary Jane Boylan, June 13; Edgar L. Bernard, an Army lieu-

tenant, to Helen Natalie Liebman, April 18; Leslie Sutton, Jr., to Marjorie Neal; Herbert K. Cummings, an ensign, to Minette Hunsiker, August 1; Henry Harrison to Miss Dorothy May Deane; Douglas L. Eckhardt, an Army lieutenant, to Lois Rockwood, August 9; Daniel W. Puffer to Eleanor Pierce, August 1; Richard Berry to Mary Elizabeth Ingham, August 29; John F. Hyde, a lieutenant, to Helen Louise Janotta; John B. Wuehrmann to Marguerite Beebe, July 25; Gerald W. Grace to Lois Ann Redding, August 8; Robert Hayes to Ruth Evelyn Nowell; Lawrence Benenson to Claire Berger; Barrett L. Taft to Marjorie Park; Herbert A. Bing to Mildred Johnson; Paul H. Lamson, an ensign, to Shirley Elizabeth Millar; Richard G. Falls to Marjorie Hamilton; John R. B. Ellis to Jane Le Cutler; Donato R. Telesca to Ruby Dacy; Leah Ming Pei to Eileen Loo, June 20; Frederick F. Noonan, a lieutenant, to Miriam E. Schmidt, August 21; R. Spencer Bailey, a lieutenant, to Lucy Armstrong; George A. Blair, a lieutenant, to Madeleine Collins; William R. White, an ensign, to Jayne H. Perry; Donald R. Erb to Martha Jean Eagles, October 10; and Arthur Thomas Higgins, a lieutenant, to Mary E. Flaherty.

Your Secretary left Newport News the middle of August and drove to Missouri and home. From there I returned to Pittsburgh, Pa., but left Dravo to come out to the West Coast, where I have been located for about two months. My only excuse for being absent from this column for so long is that we've made three moves and traveled 5,800 miles in the last few months. On top of that, I've changed jobs and made an application for the Navy, so I'll have to ask you to consider before condemning. — If you can't do better than just send me a post card, please do that at least, and I'll try to keep some semblance of a news column going. — H. GARRETT WRIGHT, *General Secretary*, 1124 Greenwich Street, San Francisco, Calif. THOMAS F. CREAMER, *Assistant Secretary*, Room 3-208, M.I.T., Cambridge, Mass.

1941

The Review Editors have solved a problem which has puzzled us for a long time. The question of publishing the names of '41 men in the service with their respective locations has bothered us no end. We have been informed that the War and Navy Departments do not object to the printing of a man's name, but they are anxious that a man's outfit and location be omitted. Thus far we have been mentioning these locations about six months late — from now on we shall remain silent on the whole matter. There is a great deal of consolation in the generous offer made by the Review Editors to set up an agency to forward mail which you might have sent to a man whose location would normally be listed in the notes. So don't hold back in trying to get a letter through to a classmate. The Review will do its utmost to forward it correctly. Wish we could do the same, but this jumping around is making it impos-

sible to keep up an active file, let alone carry it around with us.

A bit of news not to be held off any longer is the fact that Bill Ahrendt has received his M.S. and has left the Institute. Bill turned over his job as Assistant Secretary, which he did so well (yes, dandelions to you, Ahrendt!), to Johan Andersen, another busy Course XV man. Johan is back at the Institute. We'll let him explain his work in subsequent paragraphs. His address is Room 12-184. Wonder where that is? Don't believe there was a building numbered 12 when we went to the Institute. Understand they've started an "A" series for the numerous buildings erected of late. They've even numbered Hedlund's shack on the board track.

Joseph Bogert is serving as a captain in the Ordnance Department of our Army. Hope he can keep Abuza and the other boys in check. Word from Ahrendt tells of the wedding of Mr. and Mrs. Stan Weber, who are now residing in the "peaceful, lackadaisical environment of Schenectady, N.Y." — Joe Anthony pops up after a long silence: "I haven't said a word about my activities since I went down the steps of Symphony Hall on June 10, 1941. Twenty days later I went on active duty as an ensign in the Navy. Then on November 1, 1941, I took as my wife a Pittsfield girl, Doris Philman, Simmons '42." Joe got that extra half stripe on June 17. He is interested in hearing from Guy Slaughter and Franklin Hawkins, both of whom went up to j.g.'s, along with Dick Levy and Dick Knapp.

Bob Alfred, whom we all thought was still doing research at the Institute with an option on a marriage contract in hand, turned up quite unexpectedly with a gold bar. He changed from the Corps of Engineers to the Ordnance Department. Guess Gott must have convinced him. And speaking of Gott — where is he?

On September 14, William Hajjar took Ann Bortz as his bride. Hajjar is teaching at the State College of Washington. The engagement of Charles Kalman and Evelyn Dickey has hit the print in St. Paul, Minn. Charlie is working with Professor Karl Fernstrom '10 at the North Carolina Shipbuilding Company. News of Pierre Hartshorne's promotion to the rank of first lieutenant has also reached us via the newspapers.

Benedict Corsa is about to enter Harvard Medical School. He wrote: "I was an usher at the wedding of Lew and Elizabeth Jester in Cambridge on June 10, exactly one year after our graduation. Carl Mueller and Dick Andrews ushered with me. It was a wonderful day. Lew and Elizabeth went to Fort Wayne, Ind., with General Electric and are now at 4225 Baltimore Avenue, Philadelphia, Pa. Vern Kyllonen '40 is still unattached in Texas. Swam into Ivor Collins, an ensign, in the Alumni Pool on August 11. He looked fine and from all accounts leads a grand roving life with the Navy. We both had a chat with good ol' Oscar. It's been one of my pleasures on my trips to Boston to have lunch with him. The only

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trouble is that he's a tough man to talk out of paying the bill. I've only succeeded once." — Wonder if Hedlund wants this advertised?

"G. B. Andrews is still at Sperry on Long Island. He has a nice job researching or developing or something," says Paul Erlandson, now an ensign in the Navy. "Bob Mayer is working for General Electric, researching and carrying on a long distance romance with a certain girl in Schenectady. Do you know the whereabouts of one T. C. Campbell?" Speak for yourself, Tom. Rog Finch dropped us a line from Virginia.

We have an announcement of the marriage of Dorothy Sturm and Bill Kussmaul, an Army lieutenant, at Jamaica Estates, N.Y. Hear that Ed Beupre is a proud father. Walt Kreske and Elizabeth Bottomly have taken the big step. Zach Abuza and Ada Mae Finn took the vows some time back. We lost two very popular coeds to non-Technology men when Barbara Laven and Marg Quinlan announced their engagements. Barbara gave us the dope on affairs at the Boston Ordnance District, where she is doing a swell job for defense in engineering. Am getting worried about postwar competition, and where are those New Orleans addresses?

Heard from Boris Miller of the Quartermaster School. — Millerby is certainly seeing this country. He writes an interesting description of Wyoming: "I was very unhappy with the cold and snowy wastes of Fort Francis E. Warren. If ever you should be searching for a spot where the wind blows unceasingly, remember I mentioned Cheyenne. There is nothing to stop the wind, it just comes from hundreds of miles, and even the houses show wear from it. The corners of the brick buildings are worn smooth and round from the violence of the wind." Richardson used to tell how the cold would set Miller's teeth chattering so that he could no longer sing — thank goodness.

Weedon wrote from Mrs. Graf's in Philadelphia that he is still touring the country for the Navy. — A letter from Larry Turnock in Rochester tells of an impending marriage. Hedlund always said Beaver couldn't run very fast, and apparently his gym experience didn't give him enough strength to avoid it. Our congratulations. Larry, by the way, is in the Chemical Warfare Service.

Bill Folberth is wearing the olive drab of the Army. We've told it before, but we repeat — Bill Schwindler and Pat Woodbury were wed on June 6. Norm Shapira writes of a swell week-end leave which he and his wife Chickie, and Bob Simon and Eleanor Ross (engagement announced) spent at Lake Placid. Will not repeat it, as you are liable to think Norm is not working with his usual inexhaustible energy at Edgewood. Russ Werby, Max Greenbaum, and Buster Rudd are at Edgewood. Russ wrote: "Buster's wife was Myrtle Poehlman. Bill Doughten is in Georgia; Mason Downing in Alabama; Chuck Wales in Louisiana; and Harry Wasserman is on the West Coast." This class sure is spread out! — Your Assistant Secretary will carry on from here.

The news from the home front at Technology should be very encouraging. The Institute has really devoted itself to winning the war. New buildings almost fill the space behind Building 10, and many buildings in the vicinity of the Institute are also being used. Research and development work is going on behind closed doors in almost all the laboratories. The co-operation which M.I.T. is extending to the government is something of which we may all be proud.

The following '41 men are working at various tasks at the Institute: Charlie King (a first lieutenant), Ed Hamacher, Dave Saxon, Alan Smith, Walter Lob, Jim Tyson, Charlie Peck, Charles Sauer (an Army lieutenant), Don Knott, Ed Kispert, Donald McDonald, Henry Walter, Robert Sinsheimer, Nat Rochester, George Vineyard, and one coed, Marjorie Quinlan.

Rochester and Vineyard have been very helpful in giving me what information they have regarding members of our Class whom we seldom hear from. A. H. Mitchell is an officer in the Air Corps and is married to the former Ruth Horten of Victoria, B.C. Lou Fykse has followed a similar path, and is now a first lieutenant in the Air Corps. Lou married Barbara Hill of Bangor, Maine, last August. Bob Smith is connected with the Air Corps. As a mathematics teacher, he pushes a piece of chalk in front of the cadets.

Paul Sanderson has been running a different race. At last report he had dated 27 different women since graduation. Incidentally, he is a chemist at the Mine Safety Appliance Company in Pittsburgh. At last report, Tim Ferguson was in Pensacola training for his naval wings.

Nat Rochester's report on a few Dekes runs as follows: Mengel is in the Army Air Corps. Jack Brogan is building planes in a California factory. Will Mengel ever fly? Will Brogan ever build a plane? Will Mengel ever fly a plane that Brogan built? — Doughten is with the United States Chemical Company. Myers is helping to make anti-aircraft shell fuses. Red Russe was last heard of working for Monsanto. Sugatt is working for the Western Electric Company at Kearny, N.J. Last summer he became permanently tied to Mary McCormack.

Jim Thornton is in the Army. At last report, his bars were silver. Howie Morrison is also a first lieutenant, and is now at the same camp as Jim. John Sexton, another first lieutenant, is still at the Springfield Ordnance office. Carl Goodwin is still with the Aluminum Company of America.

I know of one group of classmates who are trying to keep themselves informed about each other by a circulating letter. But the letter has disappeared — perhaps due to enemy action. Let's keep this kind of thing going in spite of difficulties. — The annual Alumni Banquet will be held on Saturday, January 30, at the Hotel Statler. This is the regular graduation-time Alumni get-together. Come if you possibly can. Best of luck to those who have to be away because of more important business.

William Folberth married Jean Schilling of St. Paul, Minn., in the chapel at Wellesley College on November 25. Bill Hooper was best man. Just before the wedding, Bill was notified that the Air Forces are sending him to preflight training school in Monroe, La. The 27th of November brought Mr. and Mrs. Folberth back to town so that Bill might be best man when William Hooper, a first lieutenant, married Evelyn Day of Portland, Maine. — STANLEY BACKER, *General Secretary*, 46 Bicknell Street, Dorchester, Mass. JOHAN M. ANDERSEN, *Assistant Secretary*, Room 12-184, M.I.T., Cambridge, Mass.

1942

Well, friends, drag up a divan, adjust your specs, and pass your glimmers over that which follows. It ought to be full of news. Weeding through the mail, we come across the following bits of information. Jack Altekruse informs us that he is doing work for the Naval Bureau of Ordnance at the Waterbury Tool division of Vickers, and that he can be addressed at 154 Circuit Avenue, Waterbury, Conn. Jack also writes that after one week of marital bliss, Fred Gander was ordered to duty on an aircraft carrier. Filo Turner (of *Voo Doo* fame) is now an ensign. After the six weeks' indoctrination period spent at Notre Dame with Frank Seeley, Hank Henderson, and the rest, he was ordered to the naval aircraft factory in Philadelphia, where he is a project engineer connected with the manufacture of airplane engines. Filo claims that he likes the work but is sort of aching for sea duty.

Ray Shrewsbury and Forbes Hancock are now ensigns and are stationed at the Philadelphia Navy Yard. Both are in the hull construction department and are assistant hull superintendents. Swinging away from the Navy for the moment, we find that Dave Stamper is now in the Army as an aviation cadet and when last heard from was still in primary school. Herb Howell is a test engineer for Wright Aircraft in Paterson, N.J.

The first news from abroad came the other day from none other than Bernard Levere, a lieutenant in the Corps of Engineers. Bernie finds both England and Scotland very beautiful. The people, especially the girls, are very friendly. He says that he is getting along fine and that he is working with our classmate E. H. O'Brien.

Passing along to the finer things in life, we find that there is lots to offer insofar as marriages and engagements are concerned. Leon Freeman, a lieutenant stationed in New Jersey, was married in Brookline on September 7 to the former Miss Falkof. Richard Meyer, a lieutenant of the Army Air Forces, stood before the Reverend R. W. Schloerb in River Forest, Ill., and now he and the erstwhile Virginia Schloerb might be located somewhere in Louisiana. Sheldon Kennedy took unto himself Betty Buell this past October in Golden, Colo., where they now make their home. Tracy Smith, an ensign, and Harriet Francis, a Colby

Please refer to Page III for information on Class Day and the Alumni Banquet — Saturday, January 30

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Junior College lass, became mates in Maplewood, N.J., on October 24. As previously rumored, Olly Swope and Elspeth Cahill were married in Chicago on September 19, and are now living in Nutley, N.J.

Just to break the string of marriages with the announcement of an engagement, we are pleased to report that Walt Eberhard, now with Sylvania Electric Products, and Eleanor Murray have a definite understanding about the future. The same can be said about Lin Adams and Cecilia Corrigan.

Francis Bushey, who is an ensign, was married to Anne Valentine in New York City. The couple now lives in Alexandria, Va. Matthew Lebenbaum and Margaret Harrow were also married in New York. Since Matthew is a research associate at Harvard, the pair may now be seen in and around Boston. John McNall announced his engagement to Mary Rockwood, formerly of Dana Hall. George Whipple, currently doing work in the Radiation Laboratory, and Barbara Tate of Gloversville, N.Y., and Mount Holyoke, have identical intentions.

Attendant with the sinking of the carrier U.S.S. *Wasp* comes word that J. B. Jorgenson, a lieutenant who was a *Wasp* pilot, earned his wings at Pensacola a year ago, and is still on the loose. Carl McGinnis is at Chapel Hill, N.C., having reported there on October 30 for naval aviation flight training. Duncan Wilson is now with the American Manganese steel division of the American Brake Shoe and Foundry Company in Denver, Colo. John Taylor is with Grumman Aircraft Engineering Corporation, Bethpage, Long Island. George Akin is somewhere among the high explosives at Pine Bluff Arsenal in Arkansas. At Wilkes-Barre, Pa., we find one of the Signal Corps lieutenants, David Baltimore. Jack Arend, also a lieutenant, is still moving from airport to airport, now being stationed at

Columbia, S.C. Myron Price is an Air Corps sergeant.

Art Power is now a lieutenant at Fort Bragg, N.C., with an ordnance company. Bob Kraus, a lieutenant of the Signal Corps, is wrapped up in decibels and electron tubes at the aircraft radio laboratory, Wright Field, Dayton, Ohio. Also a lieutenant at Wright Field is David Whitcomb. Charlie Speas, another lieutenant, has an Army Post Office number. Charlie Smith, one of Professor Paul Pigors' laborites, has already found the War Labor Board meetings a good place to practice a few theories. C. D. Buford, a lieutenant, has left the tall timber of Minnesota and is now somewhere in the wilds of Louisiana finding out how the Corps of Engineers tears up railroad tracks and throws new trains into action.

The system of Course Secretaries has borne some fruit, at least, as can be witnessed from the following remarks passed on to us by Janet Norris. John Carchia and Dick Bridge, both lieutenants, bid goodbye in July and headed for unknown destinations. A letter from Dick described his life over there in an estate that has 200 rooms. They have taken trips to some of the well-known parts of England, and they send back thanks to the architectural coeds for teaching them the habit of drinking tea. It is very handy to do so in England. Both are in the same company and are commanding troops.

Burt Rockwell, a lieutenant of the Engineers, is also stationed overseas. Burt is really getting a bang out of the Army life. He is doing camouflage work. Michael Slocum is a lieutenant somewhere in the tropics, where they have lizards as pets, constant siestas, and plenty of dark-skinned women who only know how to say "yes" in English. Norman Anderson, a lieutenant, who left school during his fifth year, is believed to be overseas. At any rate, he is hiring native cannibals to carry out his

engineering schemes at the super wage of 15 cents per day.

Mort Reed was the first architect to get married since graduation and certainly got a peach in Helen Townsend of Worcester. Mort is an ensign in the Navy and has been stationed at Technology. Housekeeping has been set up at 22 Chauncy Street, Cambridge. Kenny MacIlroy, an ensign, is in Yorktown and is endeavoring to be a good civil engineer in spite of the fact that he is an architect at heart. The engineers in our noble audience can appreciate the sorry plight of his aesthetic soul. Kenny doesn't like boats, gets seasick, and can't even swim; he will join the "Seabees" shortly. Lisa Minevitch, Janet Norris, and Burton Eddy are back at Technology taking graduate work. Cooper Milliken is at Buffalo working in the design department of the Curtiss-Wright Aircraft Company. Bill Zimmerman is employed by E. B. Badger and Sons Company in Boston and is living with his wife Connie in Cambridge.

Larry Holden has become a proud father for the second time. Incidentally, he is now working in the Radiation Laboratory at school. Dexter Wells is now working in Chicago, but his exact address has not yet been determined. Ann Humphrey Bintliff is hard at work as a senior engineering draftsman for the Government, all of which proves that it is possible to be cute, witty, and intelligent at the same time. Naturally, Annie returned to her beloved Texas and can be reached at 802 K Avenue, Galveston, Texas.

All in all, our classmates are a pretty busy bunch and, to keep informed as to what happens to all in the far reaches of civilization, let's keep the wires hot and the mailman busy. A most happy New Year to the "all of ye." — FREDERICK W. BAUMANN, JR., *General Secretary*, Orchard Lane, Golf, Ill. KARL E. WENK, JR., *Assistant Secretary*, The Graduate House, M.I.T., Cambridge, Mass.

★ WAR on *Wear!* ★

MANHATTAN'S suggestions for the Care of POWER TRANSMISSION BELTS

How NOT to do it! Don't nail up a board to keep belt on pulleys. Align pulleys correctly and keep them clean.

THE greater the output, speed and strain, the greater the belt wear. "Keep 'em running" on the factory front—with less wear and trouble—by following these simple instructions.

1. Do not allow oil, grease or gasoline to come in contact with belt.
2. Avoid exposing belts to sunlight and excessively hot or cold weather.
3. Avoid heavy overloads.
4. Don't leave tools or other objects near belt to get caught in drive.
5. Don't allow belt to rub against stationary objects. (See inset photograph.)
6. Use right size and type of belt on pulleys of correct size—too small pulleys shorten belt life.
7. Do not try to take out all stretch on new belt. Install only tight enough to pull load without slipping—then shorten only if necessary.
8. Use proper type fasteners of correct size for pulleys.
9. Keep tight side down for greater arc of contact and more power.
10. Pulleys with excessive crown cause fastener failure.
11. Do not apply large belts by rope and power.
12. Use constant tension motor base on short center drives.
13. Cut belt square and line up before splicing. Seam side away from pulleys.
14. Keep pulleys clean, in good condition and in correct alignment so that belts will run true and wear evenly.
15. Keep proper tension. Too tight a belt may cause fastener and bearing trouble; too loose, slip and wear.
16. If dressing is necessary, use type recommended by belt manufacturer. Never use rosin. Correct fault in drive instead of dressing belt.
17. Provide take-up facilities.
18. Inspect splices and remove worn fasteners before they cause injury to belt.
19. Avoid slippage, evidenced by polished surface.
20. Use factory-made endless belts whenever possible.
21. Cut down large worn belts into smaller sizes for light drives.
22. Consult your MANHATTAN representative. Write factory or your distributor.

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Charles P. McHugh, '26 Daniel J. Hanlon, '37
Albert W. Becker, '40

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delivered early in 1943. If you will need instruments for use in late spring and summer, order them now, specifying the desired delivery dates. Ordering well in advance will help to assure on-time deliveries. On the other hand, please do not call for delivery ahead of actual needs, and thus prevent someone else from getting urgently needed equipment on time. Your co-operation will help us to deliver what you want, when you need it.



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